

MILL SUPPLIES

SAWS KNIVES

CATALOG No. 24



A. L. HOLCOMB Co.

15 MARKET AVE., N. W.
GRAND RAPIDS, MICHIGAN

GIFT Ron Koenig
1997

MILL SUPPLIES

Wood Working Tools and Equipment

SAWS DADO HEADS KNIVES

CATALOG No. 24

A. L. HOLCOMB COMPANY

Established 1873

Incorporated 1918

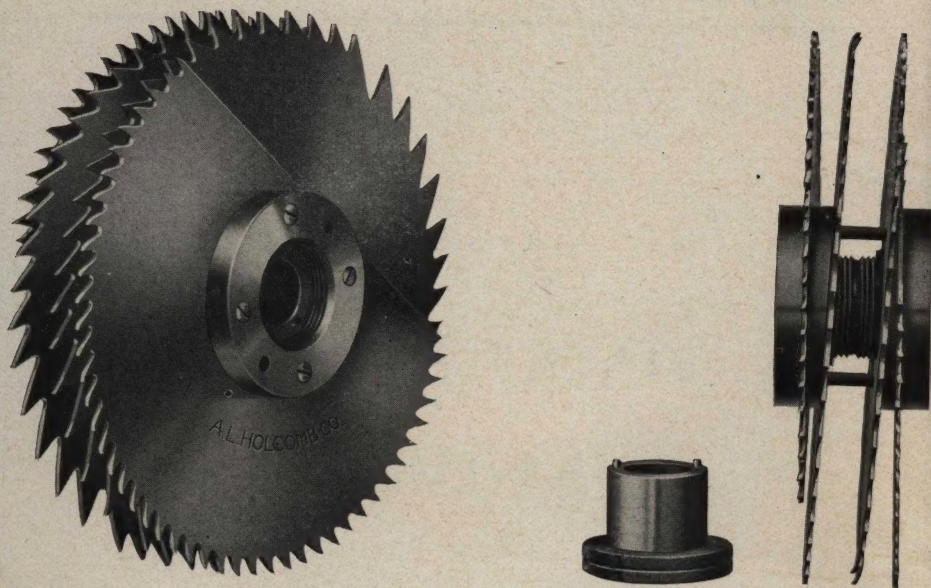
15 Market Ave. N. W.

Grand Rapids, Michigan

PAPV04-6857
11-24-2004

TDCAT
1924

ADJUSTABLE DADO HEADS



THE NO. 1 ADJUSTABLE DADO HEAD.

Constructed of four saws, mounted on suitable collars. This head is very easily fitted and makes a perfect cut with or across the grain; is easily adjusted to make any cut within its range by means of a little wrench which slips over the spindle.

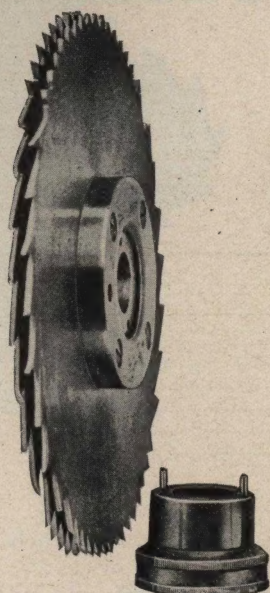
These Heads have been in successful use for 25 years, and today practically every furniture manufacturer in the City of Grand Rapids, has from one to twenty-five of them.

No. 1 ADJUSTABLE DADO HEAD.

Diam. Inches	Adjusts $\frac{3}{8}$ to $\frac{1}{2}$	Adjusts $\frac{1}{2}$ to 1	Adjusts $\frac{5}{8}$ to $1\frac{1}{4}$	Adjusts $\frac{3}{4}$ to $1\frac{1}{2}$	Adjusts $\frac{7}{8}$ to $1\frac{3}{4}$	Adjusts 1 to 2	Adjusts $1\frac{1}{4}$ to $2\frac{1}{2}$	Adjusts $1\frac{1}{2}$ to 3
8	\$33.60	\$32.20	\$32.20	\$32.20	\$33.60	\$33.60	\$35.00	.....
10 .....	.....	36.40	35.00	35.00	35.00	36.40	36.40	\$39.20
12 .....	.....	.....	42.00	39.20	39.20	39.20	42.00	42.00
14 .....	.....	.....	.....	47.60	44.80	44.80	44.80	47.60

Discount.....

ADJUSTABLE DADO HEAD



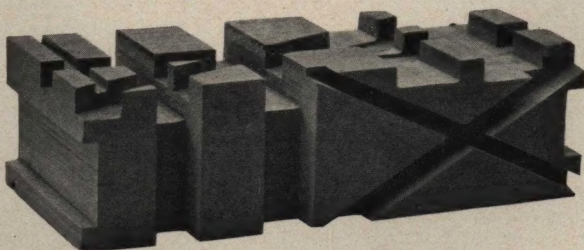
THE NO. 4 ADJUSTABLE DADO HEAD.

Adjusted in the same way as the No. 1 head. This head is composed of two saws, thereby enabling a smaller range of cut than the No. 1 head, and will make equally as good a cut.

One-half of the circumference is made with rip and the other half cut-off teeth.

NO. 4 ADJUSTABLE DADO HEAD.

Diam. Inches	Adjusts $\frac{5}{16}$ to $\frac{5}{8}$	Adjusts $\frac{3}{16}$ to $\frac{3}{8}$	Adjusts $\frac{1}{4}$ to $\frac{1}{2}$	Adjusts $\frac{3}{16}$ to $\frac{5}{8}$	Adjusts $\frac{3}{8}$ to $\frac{3}{4}$
8	\$21.60	\$21.60	\$22.80	.....	.....
10	.....	24.00	24.00	25.20	.....
12	.....	.....	26.40	26.40	27.60



Above cut shows various cuts that can be made with either sectional or adjustable head.

Discount.....

GROOVER AND SHAPER SAWS



Thickness		$\frac{1}{8}$ inch	$\frac{3}{16}$ inch	$\frac{1}{4}$ inch	$\frac{5}{16}$ inch
Space of Teeth		$\frac{1}{2}$ inch	1 inch	1 inch	1 $\frac{1}{4}$ inch
Diameter	4 inches	\$3.60	\$3.80	\$6.20	\$7.00
Diameter	5 inches	4.20	4.40	7.20	8.00
Diameter	6 inches	5.20	5.40	8.20	9.20
Diameter	7 inches	6.00	6.40	9.20	10.40
Diameter	8 inches	6.80	7.40	10.20	11.60
Diameter	9 inches	7.40	8.40	11.40	13.00
Diameter	10 inches	8.20	9.40	12.60	14.40
Diameter	11 inches	10.60	11.80	14.00	16.80
Diameter	12 inches	11.60	12.80	15.40	19.20

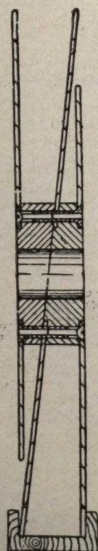
All saws under 4 inches in diameter take 4 inch list.

Bevel Saws, add 10 per cent to above prices.

Saws with teeth shaped and backed off, add 50 per cent to above.

Special saws made to order, special prices.

Discount



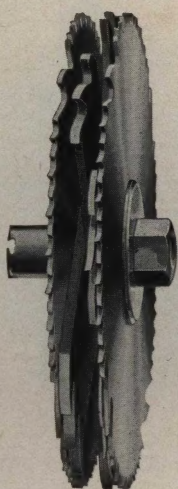
No. 6

No. 6 NON-ADJUSTABLE DADO HEAD.

Made to cut ANY ONE WIDTH from $\frac{5}{16}$ to 2 inches.

Price on application.

SECTIONAL DADO HEAD



This head consists of two special saws on the outside with as many sections on the inside as required to make the desired width.

This head cuts very smooth and has the advantage of adjustments from one-quarter inch to any width, and is much cheaper than the adjustable head.

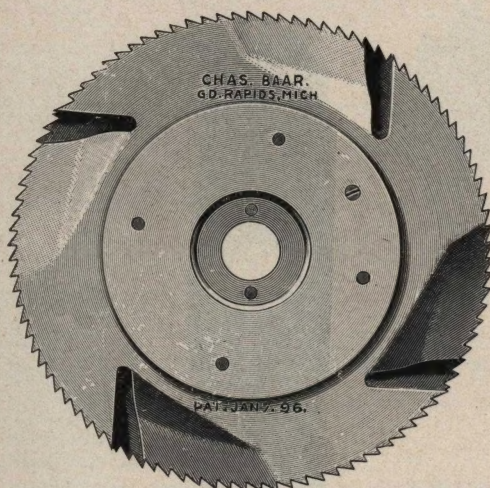
SECTIONAL DADO HEADS.

Diam. Inches	Adjusts $\frac{1}{4}$ to $\frac{3}{8}$ "	Adjusts $\frac{1}{4}$ to $\frac{1}{2}$ "	Adjusts $\frac{1}{4}$ to $\frac{3}{4}$ "	Adjusts $\frac{1}{4}$ to 1"	Adjusts $\frac{1}{4}$ to $1\frac{1}{2}$ "
6	\$ 9.70	\$11.60	\$14.00	\$15.90	\$19.80
8	12.50	14.70	17.50	19.70	24.20
10	16.00	18.50	21.80	24.40	29.40
12	25.00	28.50	33.00	36.70	44.00

Diam. Inches	Adjusts $\frac{1}{4}$ to 2	Adjusts $\frac{1}{4}$ to 3	Adjusts $\frac{1}{4}$ to 4	$\frac{1}{8}$	Extra Plates $\frac{1}{8}$	$\frac{3}{16}$ or $\frac{1}{4}$
6	\$23.70	\$31.60	\$39.40	\$.90	\$1.40	\$2.00
8	28.70	37.70	46.60	1.10	1.70	2.20
10	34.40	44.50	54.60	1.40	2.00	2.50
12	46.70	54.40	66.20	1.70	2.20	2.90
14	51.20	65.80	80.30	2.20	2.50	3.60

Discount.....

DADO HEADS



This Dado Head is essential in any wood working factory that uses a saw and will cut various widths, depending upon the size of the head. This is the only head that does not require taking apart for filing and there is nothing about it that can fly off or come apart. It will not spread or spring while cutting and is easily adjustable to any width within its range by means of the small wrench which slips over the spindle.

We furnish these heads as shown and also with set screw collar, when desired for use on Dado Machine or Stickers. When furnished for use on Dado Machine, we make them in pairs so they can be butted together, thus doubling the width of the groove.

It is by far the simplest and most economical head on the market—two important things to consider when buying.

We furnish these saws regularly to cut with or across the grain.

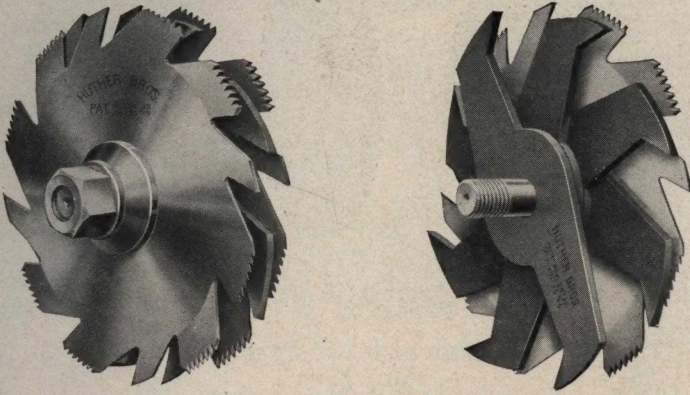
When ordering be sure and state Size of Saw and the SIZE OF ARBOR saw is to run on.

PRICE LIST.

Adjusts	$\frac{3}{8}$ to $\frac{3}{8}$	$\frac{1}{4}$ to $\frac{1}{2}$	$\frac{3}{8}$ to $\frac{3}{8}$	$\frac{1}{2}$ to $\frac{3}{8}$	$\frac{3}{8}$ to 1	$\frac{3}{4}$ to $1\frac{1}{4}$	$\frac{7}{8}$ to $1\frac{1}{2}$	1 to $1\frac{3}{4}$	$1\frac{1}{4}$ to $2\frac{1}{4}$
Diameter									
8 in.	\$21.60	\$21.60	\$21.60	\$22.20	\$22.80	\$23.40	\$24.00	\$24.60	\$25.80
9 in.	23.40	23.40	23.40	24.00	24.60	25.20	25.80	26.40	27.60
10 in.			25.20	25.80	26.40	27.00	27.60	28.20	29.40
12 in.				30.60	31.20	31.80	32.40	33.00	34.20

DADO HEADS

HUTHER BROS. PATENT GROOVER OR DADO HEAD.



SHOWING ARRANGEMENT OF CUTTERS ON SAW ARBOR.

For cutting any width groove from $\frac{1}{8}$ to 4 inches or over.

This groover consists of two outside saws, each of which is a groover in itself, and as many inside cutters as required.

The inside cutters are made $\frac{1}{16}$, $\frac{1}{8}$ and $\frac{1}{4}$ inch thick, so that any width groove measurable in sixteenths may be cut.

The outside cutters are made $\frac{1}{8}$ inch thick.

It will cut a perfect groove, either with or across the grain, and will not leave a rough edge as is the case with ordinary groovers.

This tool is recommended to any person in need of a perfect Groover, Dado, or Gaining Head.

The outside cutters can be used singly, together, or in connection with as many or as few inside cutters as required to cut the necessary width groove.

The Groovers are Arranged in Sets as Follows:

No. 1 Set—Cuts $\frac{1}{8}$ to $\frac{3}{8}$ by $\frac{1}{8}$ -inch.

No. 2 Set—Cuts $\frac{1}{8}$ to $\frac{5}{8}$ by $\frac{1}{8}$ -inch.

No. 3 Set—Cuts $\frac{1}{8}$ to $\frac{3}{4}$ by $\frac{1}{8}$ -inch.

No. 4 Set—Cuts $\frac{1}{8}$ to 1 by $\frac{1}{8}$ -inch.

No. 5 Set—Cuts $\frac{1}{8}$ to $1\frac{1}{2}$ by $\frac{1}{8}$ -inch.

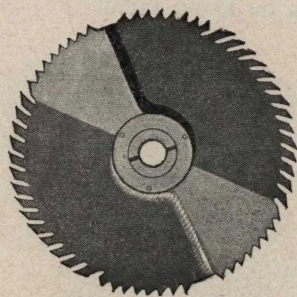
No. 6 Set—Cuts $\frac{1}{8}$ to 2 by $\frac{1}{8}$ -inch.

No. 7 Set—Cuts $\frac{1}{8}$ to 3 inches wide.

No. 8 Set—Cuts $\frac{1}{8}$ to 4 inches wide.

Special sets made to cut from 4 to 8 inches wide.

DADO HEADS

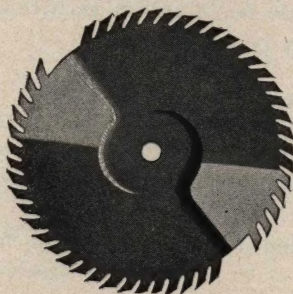


Adjustable Head. Cuts any width between given sizes.

REVISED SIZE AND PRICE LIST.
ADJUSTABLE.

DIAMETER	Adjust $\frac{1}{2}$ to $\frac{3}{4}$ "	Adjust $\frac{5}{8}$ to 1"	Adjust $\frac{3}{4}$ to 1 $\frac{1}{4}$ "	Adjust $\frac{7}{8}$ to 1 $\frac{1}{2}$ "	Adjust 1 to 1 $\frac{3}{4}$ "
7 inches	\$12.00	\$13.00	\$14.00	\$15.00	\$17.00
8 inches	13.00	14.00	15.00	16.00	18.00
9 inches	14.00	15.00	16.00	17.00	19.00
10 inches	15.00	16.00	17.00	18.00	20.00

Solid Heads. For single Cuts, Grooving and Dadoing.

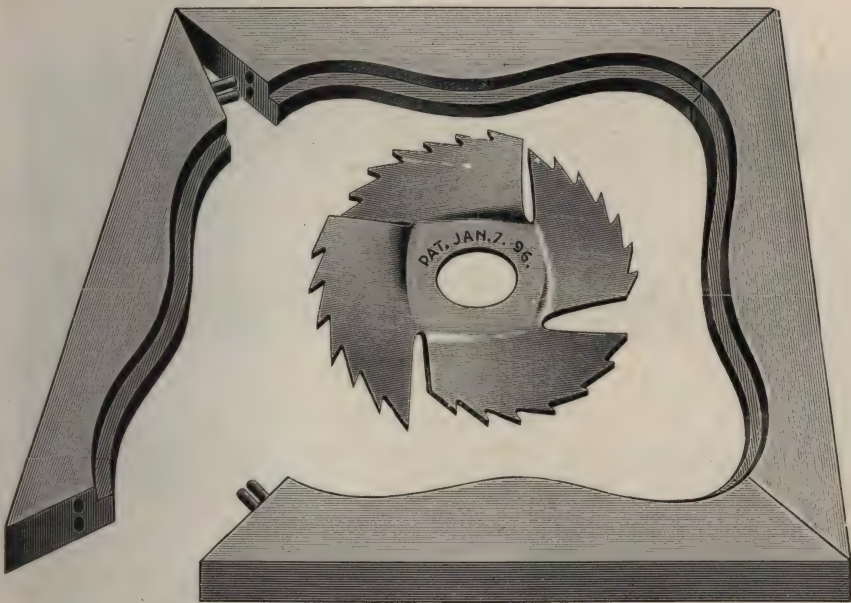


SOLID OR NON-ADJUSTABLE.

Diameter	Thickness $\frac{3}{8}$	Thickness $\frac{1}{4}$ or $\frac{5}{16}$	Thickness $\frac{3}{8}$	Thickness $\frac{1}{2}$	Thickness $\frac{5}{8}$	Thickness $\frac{3}{4}$	Thickness $\frac{7}{8}$	Thickness 1
7 inches	\$3.50	\$4.00	\$4.50	\$5.00	\$5.50	\$6.00	\$6.50	\$7.00
8 inches	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50
9 inches	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00
10 inches	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50

In ordering, state whether head to cut with, or across, or both ways of the grain.
BE SURE TO GIVE SIZE OF ARBOR.

RABBETING SAWS



These rabbeting saws are used on shapers and possess many advantages over the old methods of cutting rabbets for looking glass frames and other work requiring a clean, smooth cut. These saws will cut against the grain, as well as with the grain of the wood, leaving the corners square and smooth. It does not leave a ragged or fluff edge. The saw will always keep its shape until used up, and the saw you want to buy, if you want good work.

Be sure and keep the saw perfectly round and joint the four bottom points. Saws are right and left hand.

When ordering, state size of Saw and also size of Arbor the saw is to run on.

LIST PRICE.

3½ in. Rabbeting Saw, cut ½ or ¾ in.	\$2.50
5 in. Rabbeting Saw, cut ¾ or 1 in.	\$3.50
6 in. Rabbeting Saw, cut ¾ or 1 in.	\$4.50
6 in. Rabbeting Saw, cut 1¼ in.	\$6.00

JOINTER SAWS.

Jointer saws are also used for tapering chair legs and backs, avoiding all the tearing out of the shaper knives. The work can all be done on one spindle. These saws cut against the grain as well as with the grain of the wood.

We can furnish Aluminum Collars with Jointer Saws for shaping with pattern.

When sharpening use a large emery wheel rest, place it a little below the center of arbor and lay the saw on it, and grind front and back of tooth.

All kinds of Shaper Saws made to order.

LIST PRICE.

6 inch Jointer Saw, cut 1¾ in.	\$6.50
7 inch Jointer Saw, cut 2 in.	8.50

NARROW BAND SAWS



NARROW BAND SAWS.

Our Saws are made from the very best SWEDISH STEEL, and each saw is carefully straightened and all twists and imperfections taken out, leaving the saw perfectly straight; thus reducing friction in the guides, and causing the saw to run longer without cracking.

NARROW BAND SAWS

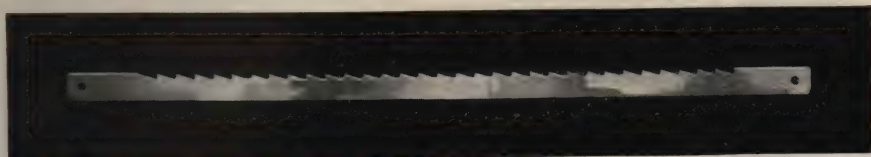
In ordering state whether saws are wanted brazed, set and filed, length, width, gauge and number of teeth to the inch.

Width, Inches	Usual Gauge	Price per foot
$\frac{1}{8}$	20 or 21	\$0.16
$\frac{9}{16}$	20 or 21	.16
$\frac{1}{4}$	20 or 21	.16
$\frac{3}{8}$	20 or 21	.17
$\frac{1}{2}$	20 or 21	.18
$\frac{5}{8}$	20 or 21	.20
$\frac{3}{4}$	20 or 21	.22
$\frac{7}{8}$	20 or 21	.25
1	20 or 21	.2
$1\frac{1}{4}$	20 or 21	.31
$1\frac{1}{2}$	20 or 21	.38

Discount.....

SPECIAL NOTICE—Above prices cover saws Set and Filed, but not Brazed. Brazing— $\frac{1}{2}$ in. and less, 20 cents; $\frac{5}{8}$ in. to $\frac{7}{8}$ in., 25 cents; 1 in. to $1\frac{1}{4}$ in., 30 cents; $1\frac{1}{2}$ in., 35 cents. Prices for brazing are net.

Deduct 4 cents from list if not set and filed.

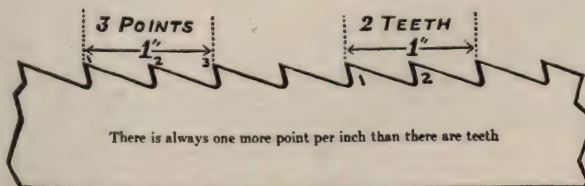


BEVEL BACK SCROLL SAW BLADES.

	Per Dozen
8 inch, $\frac{1}{8}$ to $\frac{1}{2}$ inch.....	\$1.85
10 inch, $\frac{1}{8}$ to $\frac{1}{2}$ inch.....	2.50
11 inch, $\frac{1}{8}$ to $\frac{1}{2}$ inch.....	2.75
12 inch, $\frac{1}{8}$ to $\frac{1}{2}$ inch.....	3.00
14 inch, $\frac{1}{8}$ to $\frac{1}{2}$ inch.....	3.50

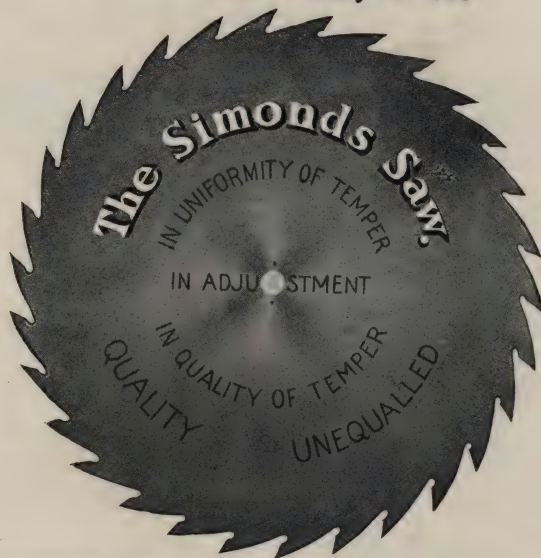
Pinning, Extra.

Discount.....



Solid Tooth Circular Saws

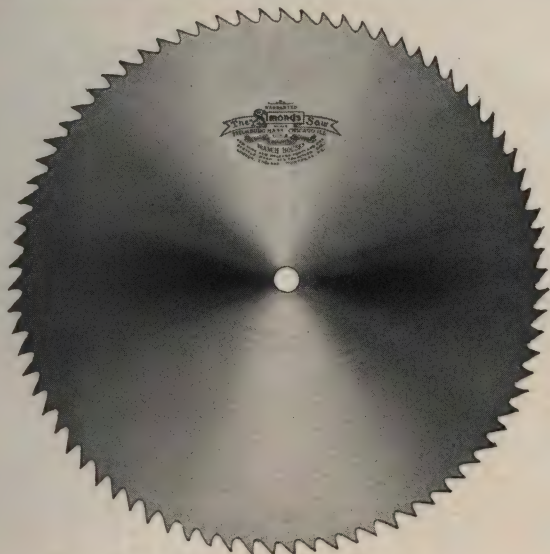
Filed and Set Ready for Use



Diameter Inches	Thickness Gauge	Size Hole Inches	Price Each	Extra for Each Gauge Heavier	Beveling New Saws Per Gauge
6	18	$\frac{3}{4}$	\$3.30	\$0.07	\$0.25
8	18	$\frac{7}{8}$	4.40	.10	.35
10	16	1	5.60	.20	.45
12	15	1	7.00	.30	.55
14	14	$1\frac{1}{8}$	8.50	.40	.65
16	14	$1\frac{1}{8}$	10.50	.50	.75
18	13	$1\frac{1}{4}$	12.50	.60	.90
20	13	$1\frac{5}{8}$	15.00	.75	1.05
22	12	$1\frac{5}{8}$	17.50	.90	1.20
24	11	$1\frac{3}{8}$	20.50	1.05	1.35
26	11	$1\frac{3}{8}$	24.00	1.25	1.55
28	10	$1\frac{1}{2}$	28.00	1.50	1.75
30	10	$1\frac{1}{2}$	32.00	1.75	1.95
32	10	$1\frac{5}{8}$	36.50	2.00	2.15
34	9	$1\frac{5}{8}$	41.00	2.25	2.35
36	9	$1\frac{5}{8}$	47.00	2.60	2.55
38	9	$1\frac{5}{8}$	54.00	3.00	2.75
40	9	2	62.00	3.40	2.95
42	8	2	71.00	3.80	3.25
44	8	2	83.00	4.40	3.55
46	8	2	98.00	5.15	3.85
48	8	2	112.00	5.90	4.15
50	7	2	127.00	6.65	4.45
52	7	2	142.00	7.40	4.80
54	7	2	157.00	8.80	5.15
56	7	2	180.00	10.25	5.50
58	7	2	200.00	11.75	5.95
60	6	2	224.00	13.25	6.40

Write for Discounts

Solid Tooth Circular Saws—Continued



Diameter Inches	Thickness Gauge	Size Hole Inches	Price Each	Extra for Each Gauge Heavier	Beveling New Saws Per Gauge
62	6	2	250.00	14.75	6.85
64	6	2	280.00	17.60	7.35
66	6	2	310.00	22.00	7.85
68	5	2	350.00	26.40	8.45
70	5	2	400.00	30.80	9.05
72	5	2	450.00	35.20	9.65
74	5	2	510.00	39.60	10.30
76	5	2	575.00	44.00	11.00
78	5	2	690.00	49.85	11.85
80	5	2	810.00	55.75	12.90
82	5	2	940.00	63.05	14.10
84	5	2	1,075.00	70.40	15.40

All saws less than 6 inches in diameter take list of 6 inch saw.

All saws filed and set ready for use.

All saws of odd diameters not listed take list of next larger size.

No extra charge for saws one gauge thicker than list.

No extra charge for saws one to three gauges thinner than list; when more than three gauges thinner than list, add 5 per cent for each gauge.

Saws 48 inches and under, and 62 inches and over, in diameter, more than two gauges thinner than list, not warranted. Saws 50 inches to 60 inches in diameter thinner than 10 gauges, not warranted.

Saws 42 inches or less in diameter beveled one gauge without extra charge; 44 inches or larger beveled two gauges without extra charge.

Saws hollow or concave ground, add for each gauge hollow or concave ground, double the list for beveling.

Saws for cutting Bone, Horn, or Ivory, add 50 per cent to the above list. When these saws are hollow or bevel ground, the 50 per cent advance is to apply only on the list of a straight gauge saw, and not on the extras for hollow or bevel grinding.

Write for Discounts

Repairing Circular Saws

Diameter	Hammering	Gumming and Hammering	Retooling and Hammering	Grinding		Setting and Sharpening	
				First Gauge	Each Additional Gauge	Cut-off Saws	Rip Saws
6 inch	\$0.45	\$0.55	\$0.75	\$0.65	\$0.35	\$0.45	\$0.35
8 "	.55	.75	1.00	.85	.55	.55	.40
10 "	.75	1.00	1.30	1.05	.75	.65	.50
12 "	.90	1.35	1.60	1.15	.85	.75	.60
14 "	1.05	1.60	1.90	1.35	1.00	.85	.70
16 "	1.20	1.80	2.20	1.60	1.15	.95	.80
18 "	1.45	2.10	2.55	1.95	1.30	1.05	.90
20 "	1.65	2.50	2.95	2.20	1.45	1.15	1.00
22 "	1.90	2.85	3.30	2.40	1.60	1.30	1.10
24 "	2.10	3.25	3.70	2.70	1.75	1.45	1.20
26 "	2.40	3.70	4.20	3.00	1.90	1.60	1.30
28 "	2.70	4.15	4.75	3.40	2.05	1.75	1.40
X 30 "	3.00	4.60	5.35	3.75	2.20	1.95	1.50
32 "	3.30	5.05	6.00	4.15	2.35	2.15	1.60
34 "	3.70	5.55	6.90	4.50	2.55	2.35	1.75
36 "	4.30	6.15	7.80	4.90	2.80	2.55	1.90
38 "	4.80	7.00	9.00	5.25	3.00	2.75	2.05
40 "	5.55	8.05	10.20	5.65	3.30	2.95	2.20
42 "	6.30	9.15	11.55	6.00	3.60	3.15	2.35
44 "	7.05	10.35	13.05	6.45	4.05	3.35	2.50
46 "	7.95	11.80	14.70	7.00	4.50	3.60	2.65
48 "	8.85	13.20	16.50	7.60	4.95	3.80	2.85
50 "	9.75	14.65	18.40	8.25	5.40	4.10	3.05
52 "	10.65	16.05	20.25	9.00	5.95	4.40	3.25
54 "	11.55	17.55	22.15	9.90	6.30	4.70	3.50
56 "	12.45	19.05	24.00	10.90	6.75	5.00	3.75
58 "	13.50	20.70	25.90	12.00	7.20	5.30	4.00
60 "	14.70	22.50	27.75	13.20	7.75	5.60	4.25
62 "	15.90	24.30	30.40	14.40	8.25	6.00	4.50
64 "	17.10	26.10	33.00	15.60	8.85	6.30	4.75
66 "	18.30	27.90	35.65	16.80	9.45	6.60	5.00
68 "	19.50	29.70	38.25	18.00	10.15	6.90	5.25
70 "	20.50	31.50	40.90	19.50	11.05	7.20	5.50
72 "	21.90	33.30	43.50	21.00	12.00	7.50	5.75
74 "	23.10	35.10	46.15	22.50	13.15	7.80	6.00

Saws smaller than 6 inches take 6 inch price.

Saws of odd diameter, take the price of next larger size.

When saw is ground, add price of hammering to price of grinding. Gumming and retooling prices cover sizes of saws after they have been repaired. All breakages at risk of owner.

Burned Saws. We repair burned saws at two-thirds price of new ones, which includes retempering, grinding, hammering, polishing, etc.

Changing Solid Saws to Inserted Point Saws. For changing Solid Saws into Inserted Point Saws, \$2.00 per tooth plus one-half the list price of Solid Tooth Saws of same size, this price being based on size the saw will cut to, and subject to same discount as Inserted Point Saws. Same extras furnished as with a new saw.

Changing Solid Saws into Inserted Tooth Cut-off Saws, charge is \$1.65 per tooth plus one-half the list price of a Solid Tooth Saw of same size. The price is based on the size the saw will finish after cutting down, and is subject to the same discount as Inserted Tooth Cut-off Saws.

Repairing burned Inserted Point Saws, two-thirds the price of a new Solid Tooth Saw of the same diameter, plus 30 cents per tooth. Add for any points and shanks inserted at regular prices. No extras furnished.

Shingle and other thin bevel saws generally will not permit being retempered.

All repairs are at risk of owner, but no charge will be made in case of failure.

Owner's name should appear on each package or board to insure identification at the factory.

Shingle and Heading Saws



LEFT HAND SAW



RIGHT HAND SAW

Diameter	Price Each	Diameter	Price Each
36 inch	\$62.00	48 inch	\$145.00
38 "	70.00	50 "	170.00
40 "	80.00	52 "	200.00
42 "	95.00	54 "	230.00
44 "	110.00	56 "	260.00
46 "	125.00	58 "	290.00
		60 "	320.00

Above list is for saws beveled not more than 8 gauges, and with thickness at center of the same gauge as shown in Solid Tooth Circular Saw list for saws of same diameter, but one gauge thicker is allowed without extra charge.

For any additional thickness or beveling, add for each gauge thicker or gauge beveling as per Solid Tooth Circular Saw list.

When ordering Shingle or Heading Saws give the following specifications: diameter of saw in inches; thickness or gauge at center and at rim; number of teeth; right or left hand; speed of saw; name of maker of machine and size of flange.

If new flange is required, send full size template of old flange, showing size and location of all holes.

If saw only is required, send the old flange to us to be fitted to the saw, or if this cannot be done, send template of holes and a sample screw by which to drill and countersink saw.

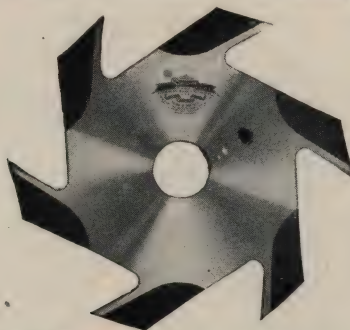
Collars for Shingle and Heading Saws or Resaws

New Cast Iron Flanges for standard makes of shingle machines fitted to new saws. Price on application.

New Steel Flanges 8 inches to 26 inches in diameter, $\frac{3}{8}$ inch thick or less, fitted to new saws, either with screws or rivets. Price on application.

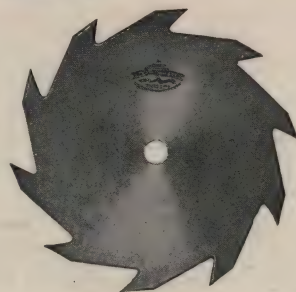
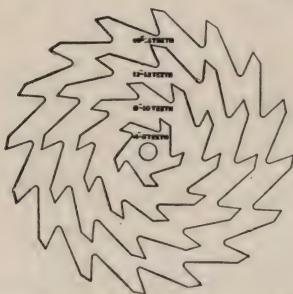
Fitting old flanges to new saws, \$8.00.

Lock Corner Cutters



Lots of less than 10, Groover Saw list plus 35 cents per tooth for scarfing.
 Lots of 10 or more, Groover Saw list plus 20 cents per tooth for scarfing.
 Addition subject to same discount as saws.
 All Lock Corner Cutters are furnished with teeth scarfed as shown above.

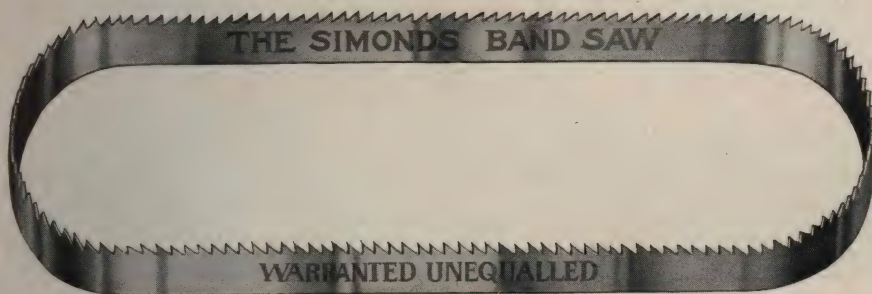
Grooving Saws



Diam. Inch	No. of Teeth	Thickness								
		1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
4	5	\$3.60	\$3.80	\$6.20	\$7.00	\$8.00	\$8.80	\$9.60	\$14.00	\$14.60
5	6	4.20	4.40	7.20	8.00	9.20	10.20	11.20	16.80	17.80
6	8	5.20	5.40	8.20	9.20	10.40	11.60	12.80	19.60	21.00
7	8	6.00	6.40	9.20	10.40	11.60	13.00	14.40	22.80	23.60
8	10	6.80	7.40	10.20	11.60	13.20	14.80	16.40	26.00	27.00
9	10	7.40	8.40	11.40	13.00	14.80	16.60	18.40	29.20	31.00
10	10	8.20	9.40	12.60	14.40	16.40	18.40	20.40	33.40	35.00
11	11	10.60	11.80	14.00	16.80	18.80	21.00	22.40	36.60	39.00
12	12	11.60	12.80	15.40	19.20	21.40	23.60	24.80	39.80	43.00
14	14	13.80	15.40	17.80	22.20	26.00	28.20	29.80	45.00	49.80
16	16	15.40	18.40	21.20	26.00	30.60	33.40	35.60	53.00	59.00

All Grooving Saws under 4 inches in diameter take 4 inch list.
 Beveled Grooving Saws, add 10 per cent to above prices.
 Grooving Saws with teeth shaped and backed off, add 50 per cent to above prices.
 Special Grooving Saws made to order, special prices.

Wide Band Saws



BRAZED AND FITTED

Width	Usual Gauge	Price per Foot
2 inch	18 to 20	\$1.00
2½ "	18 to 20	1.20
3 "	18 to 20	1.40
3½ "	18 to 20	1.60
4 "	17 to 19	2.00
4½ "	17 to 19	2.20
5 "	17 to 19	2.40
5½ "	17 to 19	2.70
6 "	17 to 19	3.00
7 "	16 to 18	3.40
8 "	14 to 16	3.80
9 "	14 to 16	4.30
10 "	14 to 16	4.80
11 "	14 to 16	5.40
12 "	13 to 15	6.00
13 "	13 to 15	7.20
14 "	13 to 15	8.40
15 "	12 to 14	10.20
16 "	12 to 14	12.00
17 "	12 to 14	16.80
18 "	12 to 14	21.60

Saws of odd widths, not listed, take price of next wider size listed.

For saws of heavier gauge than listed add 5 per cent to list for each gauge heavier.

No extra charge for saws one or two gauges thinner than list; when more than two gauges thinner, add 5 per cent to list for each gauge.

Double Edge Band Saws. List price per foot, all widths, advance 10 per cent over list prices of single edge saws as above.

Toothed Blanks. Same price as finished saws.

Band Saw Blanks. Bright, of any width, furnished to order, but not warranted.

Write for Discounts

MORTISING AND BORING TOOLS



No. 101-B AND 102-B REGULAR HOLLOW CHISELS

No. 101-B, 4-INCH BLADE.

No. 102-B, 2 $\frac{3}{4}$ -INCH BLADE.

No. 101-B Hollow Chisels with 4 inch blade have shank $\frac{5}{8} \times 1\frac{1}{8}$ inch on sizes $\frac{1}{2}$ inch and smaller, $\frac{3}{4} \times 1\frac{1}{4}$ inch on sizes $\frac{7}{8}$, $\frac{5}{8}$ and $\frac{11}{8}$ inch while larger sizes have $1\frac{1}{2} \times 1\frac{1}{2}$ inch shank. The $\frac{1}{4}$ and $\frac{1}{8}$ inch have re-enforced blade to mortise 2 inches deep, all larger sizes having straight blade mortising to a depth of about 3 inches.

The No. 102-B Hollow Chisels have 2 $\frac{3}{4}$ inch blade and shank $\frac{5}{8} \times 1\frac{1}{8}$ inch. They are made with straight blade to mortise 2 inches deep.

Listed sizes carried in stock.

No. 101-B REGULAR HOLLOW CHISEL—4-INCH BLADE

List Price Each

Size	$\frac{1}{4} \times \frac{1}{4}$	$\frac{1}{8} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{3}{8}$	$\frac{3}{8} \times \frac{7}{8}$	$\frac{3}{8} \times \frac{1}{2}$	$\frac{3}{8} \times \frac{9}{16}$
Price	\$4.40	\$4.40	\$4.40	\$4.95	\$5.15	\$5.40
Size	$\frac{7}{8} \times \frac{1}{8}$	$\frac{1}{8} \times \frac{1}{2}$	$\frac{1}{8} \times \frac{1}{8}$	$\frac{1}{8} \times \frac{5}{8}$	$\frac{1}{2} \times \frac{1}{2}$	$\frac{1}{2} \times \frac{5}{8}$
Price	\$4.80	\$5.40	\$5.60	\$5.80	\$5.25	\$6.00
Size	$\frac{1}{2} \times \frac{3}{4}$	$\frac{9}{16} \times \frac{9}{16}$	$\frac{5}{8} \times \frac{5}{8}$	$\frac{11}{8} \times \frac{11}{8}$	$\frac{3}{4} \times \frac{3}{4}$	$\frac{7}{8} \times \frac{7}{8}$
Price	\$6.40	\$5.65	\$6.05	\$6.50	\$6.90	\$7.80

No. 102-B REGULAR HOLLOW CHISEL—2 $\frac{3}{4}$ -INCH BLADE

List Price Each.

Size	$\frac{1}{4}$ "	$\frac{1}{8}$ "	$\frac{3}{8}$ "
Price	\$3.50	3.50	3.50

MORTISING AND BORING TOOLS



No. 101-H AND 102-H HARD-WEAR CHISELS

No. 101-H, 4 INCH BLADE.

No. 102-H, 2 $\frac{3}{4}$ INCH BLADE.

PATENTED DEC. 27, 1921.

The No. 101-H HARD-WEAR HOLLOW CHISELS have straight blade 4 inches long to mortise about 3 inches deep, except on the $\frac{1}{4}$ and $\frac{1}{8}$ inch sizes which are of the re-enforced type to mortise only 2 inches deep. Shank dimensions on stock tools are similar to those on regular chisels shown.

Our No. 102-H HARD-WEAR HOLLOW CHISEL is of straight blade type 2 $\frac{3}{4}$ inches long to mortise 2 inches deep and carried in stock only in sizes $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{3}{8}$ inch.

The HARD-WEAR chisels are made with smooth bore and without broaching in the four corners. An extra opening near cutting edges gives quick chip relief, reduces heating, prevents clogging and in difficult mortising assures longer life to the tools. Bits for use in these chisels are our No. 120-B and our No. 120-H.

Listed sizes carried in stock.

No. 101-H HARD-WEAR HOLLOW CHISEL—4-INCH BLADE

List Price Each

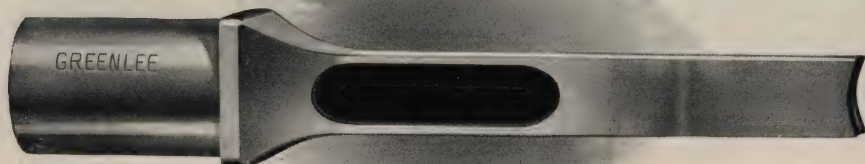
Size	$\frac{1}{4} \times \frac{1}{4}$	$\frac{1}{8} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{3}{8}$	$\frac{1}{2} \times \frac{1}{2}$	$\frac{1}{2} \times \frac{1}{2}$
Price	\$4.40	\$4.40	\$4.40	\$4.80	\$5.25
Size	$\frac{1}{8} \times \frac{1}{8}$	$\frac{5}{8} \times \frac{5}{8}$	$1\frac{1}{8} \times 1\frac{1}{8}$	$\frac{3}{4} \times \frac{3}{4}$	$\frac{7}{8} \times \frac{7}{8}$
Price	\$5.65	\$6.05	\$6.50	\$6.90	\$7.80

No. 102-H HARD-WEAR HOLLOW CHISEL—2 $\frac{3}{4}$ -INCH BLADE

List Price Each

Size	$\frac{1}{4} \times \frac{1}{4}$	$\frac{1}{8} \times \frac{1}{8}$	$\frac{3}{8} \times \frac{3}{8}$
Price	\$3.50	\$3.50	\$3.50

MORTISING AND BORING TOOLS



No. 103-B REGULAR HOLLOW CHISEL—5-INCH BLADE

HOLLOW CHISELS with 5 inch blade take No. 103-B, all sizes $\frac{3}{4}$ inch and smaller have shank $1\frac{1}{8}$ inch diameter, $1\frac{3}{4}$ inch long, while sizes $\frac{7}{8}$ inch to $1\frac{1}{4}$ inch have shank $1\frac{3}{8} \times 1\frac{3}{4}$ inch. The $\frac{3}{8}$ inch chisels are regularly supplied with re-enforced blade to mortise 2 inches deep and larger sizes having straight blade will mortise to a depth of about 4 inches.

Bits for use in these chisels have 7 inch twist, 10 inch overall, our No. 122-F or our No. 122-H.

These chisels have smooth bore with broaching in the four corners and with a single opening for the clearance of chips. Orders should clearly designate whether *HARD-WEAR* or *REGULAR CHISEL* and *BITS* are wanted.

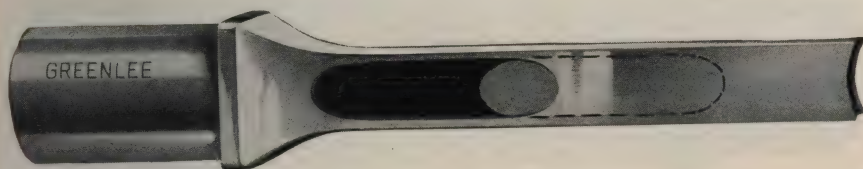
Sizes as listed carried in stock.

No. 103-B REGULAR HOLLOW CHISEL—5-INCH BLADE

LIST PRICE EACH

Size	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{9}{16}$ "	$\frac{5}{8}$ "
Price	\$ 5.80	\$ 6.20	\$ 6.60	\$7.05	\$7.45
Size	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{8}$ "	$1\frac{1}{4}$ "
Price	\$ 8.25	\$ 9.10	\$ 9.90	\$10.75	\$11.60

MORTISING AND BORING TOOLS



NO. 103-H HARD-WEAR HOLLOW CHISEL—5-INCH BLADE

PATENTED DEC. 27, 1921.

The No. 103-H HARD-WEAR HOLLOW CHISELS have 5 inch blade with hanks $1\frac{1}{8}$ inch and $1\frac{1}{8}$ inch diameter as on our regular No. 103-B. The core is a smooth round hole without broaching in the four corners. An extra opening toward the cutting edges allows the chips to be thrown out quicker causing less strain on both bit and chisel, with less heating and without logging.

On extra hard woods or such woods that are difficult to machine the HARD WEAR HOLLOW CHISEL is especially adapted. We recommend these in all work where difficulty is experienced with the regular type.

Bits for these chisels have 7-inch twist, our No. 122-B and No. 122-H.

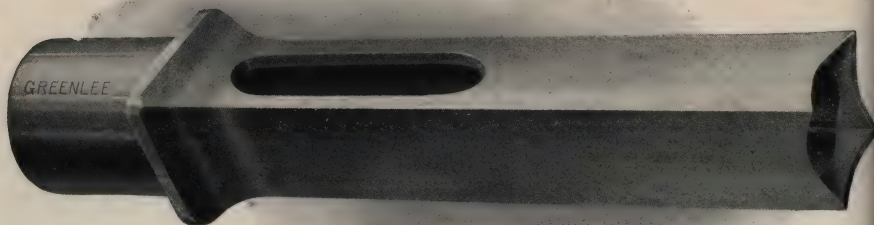
Sizes as listed carried in stock.

NO. 103-H HARD-WEAR HOLLOW CHISELS—5-INCH BLADE

List Price Each

Size	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{9}{16}$ "
Price	\$5.80	\$6.20	\$6.60	\$7.05
Size	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"
Price	\$7.45	\$8.25	\$9.10	\$9.90

MORTISING AND BORING TOOLS



No. 104-B AND 105-B REGULAR HOLLOW CHISELS

No. 104-B, 6½ INCH BLADE.

No. 105-B, 8 INCH BLADE.

Shank diameter is 1⅝ inch on ¾ inch and smaller, 1⅜ inch on 7/8 inch, 1¼ inch on 1⅜ to 1½ inch, 2¼ inch on 1⅝ to 2 inch, 2¾ inch on 2½ to 2⅞ inch. Shanks are 2 inches long.

6½ inch blade chisels take 9 or 10 inch twist bits while 8 inch blade chisels take 10 or 11 inch twist bits according to the machine in which they are used.

Longer length of chisels take advance of 10% in list for each inch fraction of inch over 8 inch blade.

Listed sizes carried in stock.

No. 104-B REGULAR HOLLOW CHISELS—6½-INCH BLADE

List Price Each

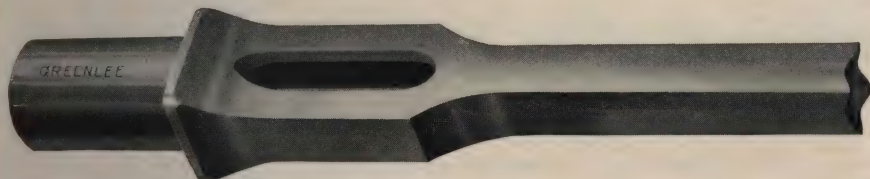
Size	¾"	7/8"	1½"	1⅝"	1⅞"	2"
Price	\$ 7.20	\$ 7.60	\$ 8.00	\$ 8.40	\$ 8.80	\$ 9.20
Size	¾"	1⅞"	7/8"	1"	1⅞"	1⅞"
Price	\$ 9.60	\$10.05	\$10.45	\$11.30	\$12.40	\$13.50
Size	1⅞"	1⅞"	1⅞"	1⅞"	1⅞"	2"
Price	\$14.60	\$15.80	\$17.30	\$18.70	\$20.40	\$22.50
Size		2⅞"	2⅞"	2⅞"	2⅞"	
Price		\$24.10	\$26.20		\$31.10	

No. 105-B REGULAR HOLLOW CHISELS—8-INCH BLADE

List Price Each

Size	¾"	7/8"	1"	1⅞"	1⅞"	1⅞"
Price	\$10.35	\$11.30	\$12.25	\$13.50	\$14.60	\$16.00
Size	1⅞"	1⅞"	1⅞"	2"	2⅞"	2⅞"
Price	\$17.40	\$19.00	\$20.50	\$24.00	\$28.50	\$33.00

MORTISING AND BORING TOOLS



RE-ENFORCED HOLLOW CHISEL.

Since the STOCK in a HOLLOW CHISEL diminishes with the smaller sizes it is frequently desirable that the length of square blade be reduced and its stiffness maintained without reducing the overall chisel length. This is accomplished by the type of chisel here illustrated.

This re-enforced type is regularly furnished in smaller sizes only, and for any ordinary work there is no objection to the decreased working depth for such sizes. For instance, a 4 inch blade HOLLOW CHISEL in the $\frac{1}{4}$ inch size is re-enforced, and will mortise to a depth of about two inches.

However, as expert investigations show that a tenon furnishes the strongest joint if its length is four times its thickness, there is no practical reason why $\frac{1}{4}$ inch chisels should mortise more than $1\frac{1}{4}$ inches deep, as an extreme.

The $\frac{1}{4}$ inch and $\frac{5}{16}$ inch in the 4 inch blade, the $\frac{3}{8}$ inch in the 5 inch blade, and $\frac{3}{8}$ inch to $\frac{1}{2}$ inch sizes in the $6\frac{1}{2}$ inch blade, are regularly carried in stock of the re-enforced type. Other sizes can be so made to order but it is neither necessary nor advisable for ordinary conditions of work.

Bits for use in these HOLLOW CHISELS naturally are stronger and stiffer where the overall length is decreased. On the smaller sizes better results will be obtained by using the shorter straight blade chisels with the corresponding shorter bits where working conditions will allow.

The $\frac{1}{4}$ and $\frac{5}{16}$ inch chisels may be supplied with $2\frac{3}{4}$ inch straight blade or 4 inch re-enforced blade to mortise exactly the same depth. The $2\frac{3}{4}$ inch blade chisels take shorter length of bits making stronger and stiffer tools.



MORTISING AND BORING TOOLS



No. 120-B AND 121-B REGULAR HOLLOW CHISEL BITS

No. 120-B, 6-INCH TWIST.

No. 121-B, 4½-INCH TWIST.

Bits having 6 inch twist for use in 4 inch blade chisels take our No. 120-B and with 4½ inch twist for 2¾ inch blade chisels our No. 121-B. The 6 inch twist bits are carried with overall length of 9, 10 and 11 inch, while the 4½ inch twist bits are 8 inch overall.

The shank is ⅝ inch diameter except on the small sizes where this size shank would not fit through the bore of the chisel. ¼ inch bits have shank ⅜ inch diameter and ⅝ inch have ¾ inch shank. We also carry sizes ⅞ inch and larger with shank ½ inch diameter.

Similar Bits of the HARD-WEAR type shown on the following page.

Listed sizes carried in stock.

No. 120-B REGULAR HOLLOW CHISEL BIT—6-INCH TWIST

LIST PRICE EACH

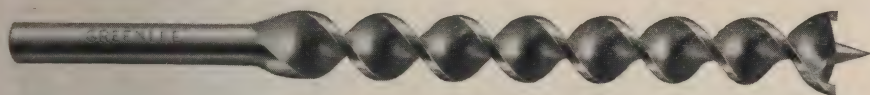
Size	¼"	⅝"	¾"	1"	1½"
Price	\$.90	\$.90	\$.90	\$.90	\$.90
Size	1½"	1¾"	2"	2½"	3"
Price	\$ 1.00	\$ 1.10	\$ 1.20	\$ 1.30	\$ 1.50

No. 121-B REGULAR HOLLOW CHISEL BIT—4½-INCH TWIST

LIST PRICE EACH

Size	¼"	⅝"	¾"
Price	\$.90	\$.90	\$.90

MORTISING AND BORING TOOLS



No. 120-H AND 121-H HARD-WEAR HOLLOW CHISEL BITS

No. 120-H, 6-INCH TWIST.

No. 121-H, 4½-INCH TWIST.

PATENTED DEC. 27, 1921

Bits of the HARD-WEAR type having 6 inch twist, 9 inches overall take No. 120-H. These are for use in No. 101-B and No. 101-H HOLLOW CHISELS having ¼ inch blade. To give greater strength on ¼ inch and ⅝ inch bits which are used in re-enforced hollow chisels, we make these sizes with 3¼ inch twist, 9 inches overall.

The No. 121-H HOLLOW CHISEL BIT has twist length of 4½ inches and overall length of 8 inches. These are used in our No. 102-B and No. 102-H HOLLOW CHISELS having 2¾ inch blade.

OUR HARD-WEAR type of bit has cutting spurs of a new style which actually remove the stock thereby reducing friction heat. The brad point will properly center the bits and is most desirable when only partial cuts are made.

Listed sizes carried in stock.

No. 120-H HARD-WEAR HOLLOW CHISEL BIT—6-INCH TWIST

LIST PRICE EACH

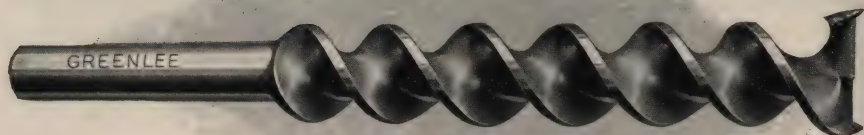
Size	¼"	⅝"	¾"	1⅞"	½"
Price	\$.90	\$.90	\$.90	\$.90	\$.90
Size	⅞"	1⅝"	1½"	¾"	7⁄8"
Price	\$1.00	\$1.10	\$1.20	\$1.30	\$1.50

No. 121-H HARD-WEAR HOLLOW CHISEL BIT—4½-INCH TWIST

LIST PRICE EACH

Size	¼"	⅝"	¾"
Price	\$.90	\$.90	\$.90

MORTISING AND BORING TOOLS



No. 122-B AND 123-B REGULAR HOLLOW CHISEL BITS

No. 122-B, 7-INCH TWIST.

No. 123-B, 9-INCH TWIST.

The No. 122-B bits have 7 inch twist, 10 inches overall and are used in 5 inch blade chisels. $\frac{3}{4}$ inch and smaller have $\frac{1}{8}$ inch shank, larger sizes having $\frac{1}{2}$ inch shank. The $\frac{5}{8}$ and $\frac{3}{4}$ inch are also made with $\frac{1}{2}$ inch shank.

The 9 inch twist bits, No. 123-B used with 6 $\frac{1}{2}$ inch blade chisels are 10 inches overall having shank $\frac{5}{8}$ inch diameter on sizes $\frac{3}{4}$ inch and larger, $\frac{1}{2}$ inch diameter on sizes $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{11}{16}$ inch, and $\frac{3}{8}$ inch diameter on sizes $\frac{3}{8}$ and $\frac{1}{2}$ inch.

Listed sizes carried in stock.

No. 122-B REGULAR HOLLOW CHISEL BITS—7-INCH TWIST

LIST PRICE EACH

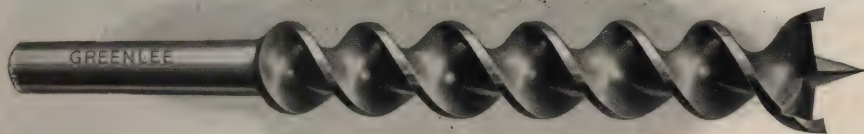
Size	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	
Price	\$1.00	\$1.00	\$1.00	\$1.10	\$1.15
Size	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	1 $\frac{1}{8}$ "	1 $\frac{1}{2}$ "
Price	\$1.45	\$1.65	\$1.90	\$2.10	\$2.40

No. 123-B REGULAR HOLLOW CHISEL BITS—9-INCH TWIST

LIST PRICE EACH

Size	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	1"
Price	\$1.15	\$1.15	\$1.15	\$1.30	\$1.40
Size	$\frac{3}{4}$ "	$\frac{11}{16}$ "	$\frac{7}{8}$ "	1"	1 $\frac{1}{8}$ "
Price	\$1.65	\$1.80	\$1.95	\$2.25	\$2.50
Size	1 $\frac{1}{8}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	1 $\frac{3}{4}$ "	
Price	\$3.00	\$3.25	\$3.60	\$3.95	\$4.40

MORTISING AND BORING TOOLS



No. 122-H HARD-WEAR HOLLOW CHISEL BIT—7-INCH TWIST

PATENTED DEC. 27, 1921

Our No. 122-H HARD-WEAR HOLLOW CHISEL BIT with 7 inch twist has overall length of 10 inches. On sizes $\frac{1}{8}$ inch and larger the shank is $\frac{1}{2}$ inch diameter while sizes $\frac{3}{16}$ to $\frac{1}{2}$ inch are made with shanks $\frac{3}{4}$ inch diameter.

These differ from the regular No. 122-B in that they have broad point and broad faced cutting spurs. The broad point centers the bit eliminating the tendency of crowding over against one side of the chisel when making a partial cut. Such rubbing of the bit against one side of the chisel would cause heating with breakage later resulting.

When mortising in the harder woods the broad faced spurs hold down excessive heating as these remove the stock instead of severing and spreading the wood fibres. The increased body of metal in the spurs will absorb such heating as does occur.

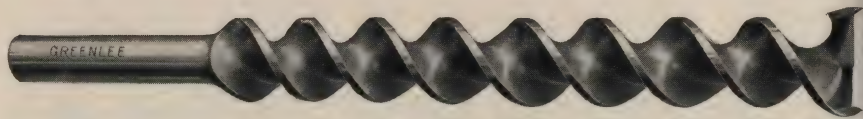
Listed sizes carried in stock.

No. 122-H HARD-WEAR HOLLOW CHISEL BITS—7-INCH TWIST

LIST PRICE EACH

Size	$\frac{3}{16}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{9}{16}$ "	$\frac{5}{8}$ "
Price	\$1.00	\$1.00	\$1.00	\$1.10	\$1.20
Size	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"		
Price	\$1.45	\$1.65	\$1.90		

MORTISING AND BORING TOOLS



No. 124-B AND 125-B REGULAR HOLLOW CHISEL BITS

No. 124-B, 10-INCH TWIST

No. 125-B, 11-INCH TWIST

The No. 124-B HOLLOW CHISEL BITS have 10 inch twist, 14 inch over while the No. 125-B have 11 inch twist, 15 inch overall. The shank is $\frac{5}{8}$ inch diameter on all sizes as listed $\frac{3}{4}$ inch and larger, $\frac{1}{2}$ inch diameter on sizes to $\frac{11}{16}$ inch and $\frac{9}{16}$ inch diameter on all smaller sizes. Our No. 104-B and 105 Chisels are used with these bits.

Listed sizes carried in stock.

No. 124-B REGULAR HOLLOW CHISEL BITS—10-INCH TWIST

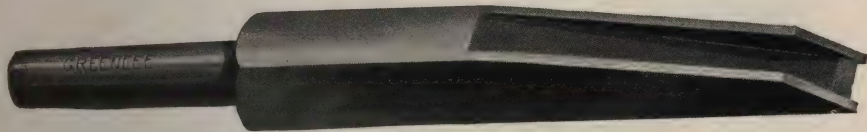
LIST PRICE EACH

Size	$\frac{3}{8}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{9}{16}$ "	$\frac{5}{8}$ "	$\frac{11}{16}$ "
Price	\$1.25	\$1.25	\$1.25	\$1.40	\$1.50	\$1.75
Size	$\frac{3}{4}$ "	$\frac{11}{16}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{8}$ "	$1\frac{1}{4}$ "
Price	\$1.80	\$1.95	\$2.10	\$2.40	\$2.70	\$3.00
Size	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	$1\frac{5}{8}$ "	$1\frac{3}{4}$ "	$1\frac{7}{8}$ "	$2\frac{1}{8}$ "
Price	\$3.30	\$3.60	\$3.90	\$4.25	\$4.55	\$4.90
Size		$2\frac{1}{8}$ "	$2\frac{1}{4}$ "	$2\frac{1}{2}$ "		
Price		\$5.35	\$5.75	\$6.60		

No. 125-B REGULAR HOLLOW CHISEL BITS—11-INCH TWIST

Size	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"	$1\frac{1}{8}$ "
Price	\$1.95	\$2.25	\$2.55	\$2.85
Size	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "	$1\frac{1}{2}$ "	$1\frac{5}{8}$ "
Price	\$3.15	\$3.45	\$3.75	\$4.10
Size	$1\frac{3}{4}$ "	2"	$2\frac{1}{4}$ "	$2\frac{1}{2}$ "
Price	\$4.50	\$5.25	\$6.10	\$7.00

MORTISING AND BORING TOOLS



No. 131 ORDINARY MORTISING CHISEL

The No. 131 ORDINARY MORTISING CHISEL has $4\frac{3}{4}$ inch blade and is carried in stock with taper shank $\frac{3}{8}$ to $\frac{7}{8}$ x $1\frac{3}{4}$ in sizes $\frac{1}{8}$ inch to 1 inch. The No. 132 has blade of same length but in the lipped pattern and is carried in stock with $\frac{3}{8}$ to $\frac{7}{8}$ x $1\frac{3}{4}$ taper shank in sizes $\frac{1}{8}$ inch to $\frac{1}{2}$ inch. The Agricultural Chisel has $5\frac{1}{2}$ inch blade and is about $7\frac{3}{8}$ inches overall. The Car Chisel has 6 to 7 inch blade with length overall from 10 to 11 inches according to size.

The taper of the shank varies on tools required for different makes of machines. To secure accurate fit from measurements, the dimensions should be taken with a micrometer caliper. We would prefer that in sending an original order, a sample shank should be supplied from which we can make a record for all future reference. Otherwise, carefully specify the size of the mortiser and its maker.

Stock carried only in No. 131 and No. 132 types and with taper shanks as shown.

No. 131 AND 132 SASH MORTISING CHISELS

LIST PRICE FOR EACH

Size	$\frac{1}{8}$ to $\frac{7}{8}$ "	1 to $1\frac{1}{8}$ "	$1\frac{1}{4}$ to $1\frac{1}{2}$ "
Price	\$2.00	\$2.50	\$3.00

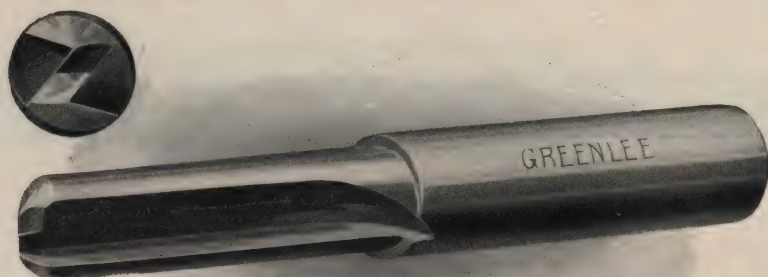
No. 133 AGRICULTURAL MORTISING CHISEL

Size	$\frac{1}{4}$ to $\frac{5}{8}$ "	$\frac{3}{4}$ to 1"	$1\frac{1}{8}$ to $1\frac{1}{2}$ "
Price	\$3.00	\$3.50	\$5.00

No. 134 CAR MORTISING CHISEL

Size	$\frac{1}{4}$ to $\frac{5}{8}$ "	$\frac{3}{4}$ to $\frac{7}{8}$ "	1 to $1\frac{1}{8}$ "
Price	\$4.50	\$5.00	\$5.50
Size	$1\frac{1}{4}$ to $1\frac{3}{8}$ "	$1\frac{1}{2}$ to $1\frac{5}{8}$ "	$1\frac{3}{4}$ to 2"
Price	\$6.00	\$6.50	\$7.00

MORTISING AND BORING TOOLS



Nos. 141 AND 142 ROUTING BITS

No. 142, RIGHT HAND.

No. 141, LEFT HAND.

The routing attachment on our relisher and mortiser requires a Bit shown. This tool is $3\frac{1}{2}$ inches overall, both shank and flute measuring 1 inches. In ordering, routing bits should be specified as No. 141 to run left hand, or No. 142 right hand.

We can supply these either with rounded end as illustrated, or with a cutting end square across. We also make the tools used in a vibrating mortiser those having either straight shank of the same size as their flute or $\frac{1}{2}$ inch round shank.

HAND HOLE ROUTERS are made either of similar form to the illustration with three flutes. We can supply these with straight blade or with attachment for rounding the corners of hand holes, which attachment may be either fixed or adjustable.

Stock is carried in our No. 142 RIGHT HAND ROUTING BITS in sizes $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{5}{8}$ inch with flute $1\frac{3}{4}$ inch long and overall length of 3 inch.

Give full specifications in ordering.

Nos. 141 AND 142 ROUTING BITS

List Price for Each. Size in Sixteenths.

Size	4	5	6	7	8
Price	\$1.80	\$1.80	\$1.80	\$1.80	\$1.80
Size	9	10	12	14	16
Price	\$2.10	\$2.40	\$2.90	\$3.40	\$3.90

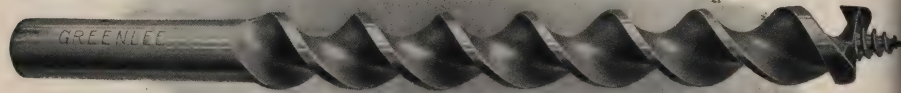
STANDARD MACHINE BIT LIST

LIST PRICE PER DOZEN

SIZE IN SIXTEENTHS

Size 16th	6-inch Twist	8-inch Twist	10-inch Twist	12-inch Twist	14-inch Twist	Each Extra 2-inch Twist
4	\$10.80	\$12.96	\$15.12	\$17.28		
5	10.80	12.96	15.12	17.28		
6	10.80	12.96	15.12	17.28	\$19.44	\$ 2.16
7	10.80	12.96	15.12	17.28	19.44	2.16
8	10.80	12.96	15.12	17.28	19.44	2.16
9	12.00	14.40	16.80	19.20	21.60	2.40
10	13.20	15.84	18.48	21.12	23.76	2.64
11	14.40	17.28	20.16	23.04	25.92	2.88
12	15.60	18.72	21.84	24.96	28.08	3.12
13	16.80	20.16	23.52	26.88	30.24	3.36
14	18.00	21.60	25.20	28.80	32.40	3.60
15	19.20	23.04	26.88	30.72	34.56	3.84
16	20.40	24.48	28.56	32.64	36.72	4.08
17	21.60	25.92	30.24	34.56	38.88	4.32
18	22.80	27.36	31.92	36.48	41.04	4.56
19	24.00	28.80	33.60	38.40	43.20	4.80
20	25.20	30.24	35.28	40.32	45.36	5.04
21	26.40	31.68	36.96	42.24	47.52	5.28
22	27.60	33.12	38.64	44.16	49.68	5.52
23	28.80	34.56	40.32	46.08	51.84	5.76
24	30.00	36.00	42.00	48.00	54.00	6.00
25	31.50	37.80	44.10	50.40	56.70	6.30
26	33.00	39.60	46.20	52.80	59.40	6.60
27	34.50	41.40	48.30	55.20	62.10	6.90
28	36.00	43.20	50.40	57.60	64.80	7.20
29	37.50	45.00	52.50	60.00	67.50	7.50
30	39.00	46.80	54.60	62.40	70.20	7.80
31	40.50	48.60	56.70	64.80	72.90	8.10
32	42.00	50.40	58.80	67.20	75.60	8.40
33	43.80	52.56	61.32	70.08	78.84	8.76
34	45.60	54.72	63.84	72.96	82.08	9.12
35	47.40	56.88	66.36	75.84	85.32	9.48
36	49.20	59.04	68.88	78.72	88.56	9.84
37	51.00	61.20	71.40	81.60	91.80	10.20
38	52.80	63.36	73.92	84.48	95.04	10.56
39	54.60	65.52	76.44	87.36	98.28	10.92
40	56.40	67.68	78.96	90.24	101.52	11.28
42	60.60	72.72	84.84	96.96	109.08	12.12
44	64.80	77.76	90.72	103.68	116.64	12.96
46	69.00	82.80	96.60	110.40	124.20	13.80
48	73.20	87.84	102.48	117.12	131.76	14.64

MORTISING AND BORING TOOLS



No. 150 DOUBLE SPUR MACHINE BIT

This No. 150 DOUBLE SPUR is the general purpose machine bit and principal stock is carried in this pattern. The bit is suited for very rapid work in all kinds of wood and requires minimum amount of power. It will bore smoothly enough for any purpose except possibly the most exacting requirement such as some kinds of cabinet work.

The lips and cutting edges are carefully proportioned for rapid, easy, smooth cutting, but so constructed as to give the maximum stock for wear and sharpening. This bit may be run as long as spur remains, and even after that may be used as a flat cut bit.

This pattern is best known and consequently the operator is usually well informed on how to keep the tool in the most approved condition. The form of cutting head is easily sharpened with a square or flat file of medium fine cut.

General sharpening directions are to file cutting edges from beneath through the throat of the bit; file spurs and side lips from inside and preserve as far as possible the original outline of cutting edges, spurs and side lips and their relation to each other. Use a new bit as a guide.

We illustrate this bit with single screw point as more commonly required. We can make special with any practical pitch, single or double screw, or with a flat point.



MORTISING AND BORING TOOLS



EXTENSION LIP.



FLAT CUT.



ROUND CUT.

DOUBLE TWIST MACHINE BITS

The No. 151 EXTENSION LIP MACHINE BITS, is preferred by many who desire to do particularly careful boring as in furniture and cabinet work. This it will do smoother work than any other type or pattern now in use.

Stock of Extension Lip Machine Bits with 4 inch twist from $\frac{1}{4}$ inch to 1 inch and with 6 inch twist from $\frac{1}{4}$ inch to $1\frac{1}{4}$ inch is carried. Stock sizes vary by 16ths and all stock bits have $\frac{1}{2}$ inch by $2\frac{1}{4}$ inch shanks.

The No. 152 ACME MACHINE BITS, is a type which appeals in particular to the workers in very hard and kiln dried woods. The effect of a spur is produced by the sharp angle between the cutting edge and the side lip, necessitating no thin projecting spur which may heat in rapid boring.

The No. 153 FLAT CUT MACHINE BIT, is a tool which drives with a minimum amount of power. It is particularly recommended for end boring, as in such cases there are no cross fibres of the wood to be cut off and the spurs are unnecessary.

The No. 154 ROUND CUT MACHINE BIT has no extending spurs and the cutting edges round over from near the base of the screw, becoming continuous with the side lips. In angle boring, this form of cutting edge permits the screw point to engage firmly before the lips take hold of the wood, thus supporting the bit against the side strain.

We carry no stock of No. 152, 153 or 154 Machine Bits. We recommend that specifications, as far as possible, follow stock sizes of the No. 150 Machine Bits. This permits working up from forged stock while otherwise special forgings are required.

MORTISING AND BORING TOOLS



No. 155 SOLID CENTER MACHINE BIT

In some classes of work there is a demand for a boring bit having greater stiffness than the stock DOUBLE TWIST MACHINE BIT. While greater strength can be obtained by using a heavy plate in the spiral of a DOUBLE TWIST BIT, there is a limit to which this increase may be carried on account of the decreased chip clearance. The SOLID CENTER type of tool offers a bit having the desired stiffness and clearance.

The distinctive feature of this tool is the single spiral or twist and the central stem formed solidly together. The bit as shown has two cutters but the trailing supporting one of these terminates directly back of the head. This leaves a single spiral around the stem allowing ample chip clearance through a broad channel.

The stem or solid center is a round section continuing through the bit from point to shank. It is of minimum size near the cutting head, increasing toward the shank. This formation allows the greatest chip clearance where most is needed and the heaviest body of stock where the principal strain occurs.

The SOLID CENTER MACHINE BIT is practical wherever requirements demand a tool of great strength. It combines rigidity, good clearance, free cutting, and long life.

Stock is carried in sizes $\frac{1}{4}$ inch to $1\frac{1}{4}$ inch by 16ths having 6 inch twist and with $\frac{1}{2} \times 2\frac{1}{4}$ inch shank. Tools of other specifications can be made promptly.

MORTISING AND BORING TOOLS



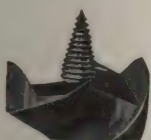
No. 156 DOUBLE SPUR.



No. 156 1/2 FLAT CUT.

SOLID CENTER MACHINE BITS

While the SOLID CENTER MACHINE BIT is best known in the pattern shown in preceeding page we also supply this type of tool in any of the patterns commonly used. We further offer the ACME and ROUND CUT pattern. None of these are carried in stock, but will be made promptly to order.



DOUBLE SCREW.



COMPARISON.



SINGLE SCREW.

SCREW POINTS

A single screw has only one thread or spiral running from the tip of the point, while the double screw has two threads starting from opposite sides at the tip and running parallel down to the base. One complete thread may be eliminated from a double screw point, thus making it into a single screw, but without changing the pitch of the thread.

A No. 12 double screw and a No. 12 single screw bores into the wood at exactly the same speed, providing the wood is such that bits follow the natural feed of the points. Yet the former will register with a No. 24 screw pitch gauge while the later agrees with a No. 12.

The double screw point is regularly made on all stock bits in the smaller sizes as the amount of stock in the point will not permit the deeper threads essential to a single screw. Stock machine bits in larger sizes have single screw point.

MORTISING AND BORING TOOLS



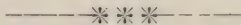
No. 157 SHIP AUGER MACHINE BIT, WITH SCREW

This pattern of bit with single spiral and cutter is a stiff, strong tool eminently suited for boring to extreme depths. It is very commonly used in car, bridge, dock and ship work, particularly in portable boring machines.

The form of twist provides a rigid tool and at the same time allows most ample chip clearance. This is essential when deep boring is done, especially in dock work where the operation is frequently under water.

SHIP AUGER MACHINE BITS are regularly furnished with hollows of twist Japanned, but may be supplied with full polish twist if desired.

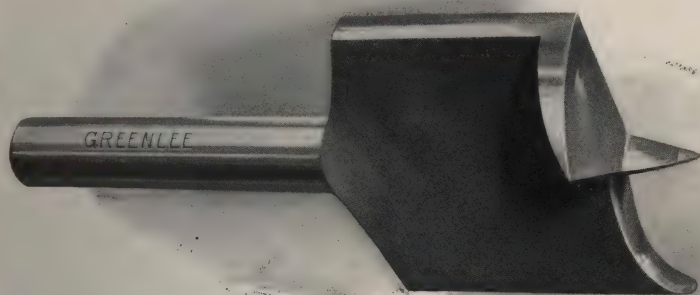
Not carried in stock.



No. 158 SHIP AUGER MACHINE BIT, WITHOUT SCREW

SHIP AUGER MACHINE BITS without point, our No. 158 are used in work where deep, straight boring is required. Without point it will not lead off with the grain of the wood to the extent of bits with point.

MORTISING AND BORING TOOLS



No. 169 MACHINE CENTER BIT

CENTER BITS are primarily intended for boring shallow holes of large diameter in light stock. Many customers use these bits even in their smaller sizes in account of their excellent boring qualities. They are fitted with brad points unless otherwise specified. Brad point is usually preferable as this bit feeds into the wood very easily.

We can supply CENTER BITS for countersinking and can recommend this tool wherever the depths are within its range. The shape of the cutting edges allow the maker to work out special forms of countersink CENTER BITS which could not be possible with any other type.

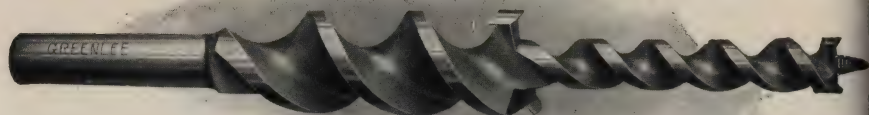
Sizes $\frac{3}{4}$ inch to $2\frac{1}{2}$ inch carried in stock with $\frac{1}{2} \times 2\frac{1}{4}$ inch shank. Other sizes special.

No. 169 MACHINE CENTER BIT

LIST PRICE, FOR EACH

Size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{5}{8}$ "	$\frac{3}{4}$ "	$\frac{7}{8}$ "	1"
Price	\$.60	\$.60	\$.85	\$1.10	\$1.35	\$1.60
Size	1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "	2"	2 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "
Price	\$1.95	\$2.30	\$2.65	\$3.00	\$3.35	\$3.70
Size	2 $\frac{3}{4}$ "	3"	3 $\frac{1}{2}$ "	4"	4 $\frac{1}{2}$ "	5"
Price	\$4.05	\$4.40	\$5.40	\$6.40	\$7.70	\$9.00

MORTISING AND BORING TOOLS



No. 180 COUNTERSINK MACHINE BIT

COUNTERSINK MACHINE BITS are very economical wherever concentric holes of varying diameters are required. Their use in such cases avoids at least one change of stock, and usually permits of better work being done. The original cost of these special tools is small in comparison with the saving thus effected.

The No. 180 COUNTERSINK MACHINE BIT shown above has cuts of the double spur pattern, and is the one most commonly specified. Our No. 181 is similar except that the larger diameter cuts a bevel to correspond to a screw hole. Our No. 182 has larger cut similar to the No. 181 but with the lead of a taper head drill type.

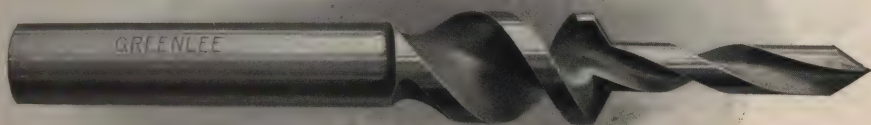
COUNTERSINK MACHINE BITS must be made with extreme care if proper results are to be obtained from their use. Particular attention is given to make certain that their twists are true with each other and with the shank. Cutting heads are sized in an engine lathe and shanks turned on the same center to correct size.

Countersinks are of such special nature that in ordering, the fullest specifications should be given. The dimensions necessary are: diameter and length of larger twist, diameter and length of smaller twist, diameter and length of shank. At the same time, the type and pattern should be noted applying to both the larger and the smaller cuts or diameters.

The list price of countersinks of all types is based on the machine bit. In obtaining this the lead and counter are figured as separate machine bits and the lists added to make the list for the combined tool.

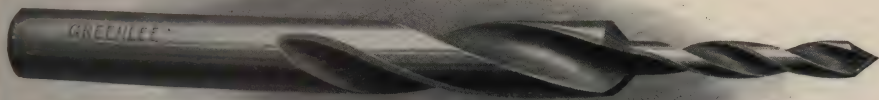
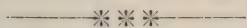
Not carried in stock.

MORTISING AND BORING TOOLS



No. 182 COUNTERSINK BIT AND DRILL

The No. 182 COUNTERSINK has a lead of the taper head drill type and a bevel cutting counter. This tool is recommended for use when it is desired to bore for small screw and set in screw head to a considerable depth.

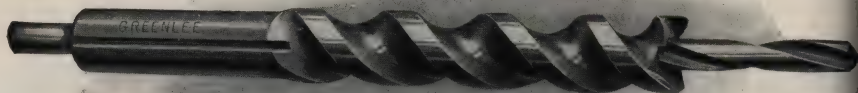


No. 185 COUNTERSINK DRILL

The No. 185 COUNTERSINK DRILL has both the lead and counter of the TAPER HEAD DRILL type. The taper of the larger cut corresponds to the bevel on head of a wood screw. The No. 186 also has twist of the drill type, but both larger and smaller cuts are fitted with spurs.

These are special and therefore complete specifications must be given.

MORTISING AND BORING TOOLS



No. 188 SPLIT SHANK COUNTERSINK

The No. 188 COUNTERSINK has split shank $\frac{1}{2} \times 1\frac{1}{2}$ inch and overall length of 4 inch. This will make a flat bottom hole as required for the setting of heads, washers, etc. On solid type of countersink the lead is frequently small to stand up causing breakage and replacement of the entire tool. This type allows replacement of drill at small expense.

Carried in stock as listed. Drills are sold separate.

No. 188 SPLIT SHANK COUNTERSINK

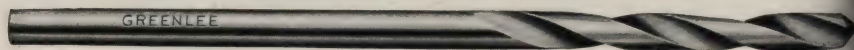
LIST PRICE FOR EACH WITHOUT DRILL

Size

$\frac{1}{2}$ -inch.....for $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$ or $\frac{5}{16}$ -inch drills.....

$\frac{3}{4}$ -inch.....for $\frac{3}{16}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{7}{8}$ or $\frac{1}{2}$ -inch drills.....

$\frac{1}{4}$ -inch.....for $\frac{1}{4}$, $\frac{3}{8}$ or $\frac{1}{2}$ -inch drills.....



No. 175 STRAIGHT SHANK DRILL

For use in our No. 188 COUNTERSINKS we furnish our No. 175 DRILLS having $2\frac{1}{2}$ inch twist, straight shank $3\frac{1}{2}$ inches long, making overall length of 6 inches. These may also be used in our No. 188 $\frac{1}{2}$ COUNTERSINKS.

Sizes as listed carried in stock.

No. 175 STRAIGHT SHANK DRILL

LIST PRICE EACH

Size	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{3}{8}$
Price	\$.60	\$.65	\$.65	\$.70

MORTISING AND BORING TOOLS



No. 188 1/2 SPLIT SHANK COUNTERSINK

Our No. 188 1/2 COUNTERSINKS are made with overall length of 3 inches and 1/2 x 1 1/2 inch split shank. The cutting parts produce a bevel hole corresponding to the taper on the head of a wood screw. The inside drill is adjustable for depth of boring and readily replaced if broken or worn out. The inside drill is sold separate, see our No. 175 or No. 175 1/2.

These are carried in stock as listed.

No. 188 1/2 SPLIT SHANK COUNTERSINK

LIST PRICE FOR EACH WITHOUT DRILL

	Price
for 1/8, 5/16, 3/16, 1/4 and 5/8-inch drills.....	\$3.00
for 3/8 and 1/2-inch drills.....	3.50



No. 175 1/2 STRAIGHT SHANK DRILL

STRAIGHT SHANK DRILLS, our No. 175 1/2, are regularly used in our No. 188 1/2 COUNTERSINKS. The twist is 2 inches long, shank 2 1/2 inches long making overall length of 4 1/2 inches.

Sizes as listed carried in stock.

No. 175 1/2 STRAIGHT SHANK DRILL

LIST PRICE EACH

Size	Price
1/8	\$.50
5/16	\$.50
3/16	\$.55
1/4	\$.55
5/8	\$.55
3/4	\$.60
1/2	\$.65

MORTISING AND BORING TOOLS



No. 176 TAPER HEAD DRILL

The TWIST DRILL is a satisfactory wood boring tool where the holes are of moderate size or depth. The ordinary metal drill is not efficient for boring wood and the tool we offer is designed for this purpose to allow free cutting and more chip clearance. Our drills are backed off on the edge of twist to prevent friction, but left with a small portion full size so that diameter will be maintained as drill is shortened in resharpening.

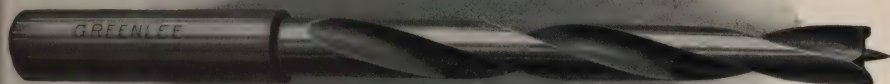
All TAPER HEAD DRILLS with 4 inch twist or less are sold from list as published, and those with longer twist on list increased per extra inch or fraction as shown in the increment line. Listed prices apply on right hand drills while the left hand take list advanced 50%. STRAIGHT SHANK DRILLS are shown on preceding pages.

Sizes 6/32 to 16/32 inch having 4 inch twist and $\frac{1}{2} \times 2\frac{1}{4}$ inch shank are in stock. Other sizes or other lengths made to order promptly.

No. 176 TAPER HEAD DRILL

	LIST PRICE FOR EACH			SIZES IN THIRTY-SECONDS		
Size	4	5	6	7	8	9
Price	\$.90	\$.90	\$.90	\$.90	\$.90	\$.90
Increment	\$.15	\$.15	\$.15	\$.15	\$.15	\$.15
Size	11	12	13	14	15	16
Price	\$.95	\$1.00	\$1.10	\$1.15	\$1.25	\$1.30
Increment	\$.15	\$.15	\$.15	\$.15	\$.15	\$.15
Size	18	19	20	21	22	23
Price	\$1.50	\$1.60	\$1.70	\$1.80	\$1.90	\$2.00
Increment	\$.15	\$.16	\$.17	\$.18	\$.19	\$.20

MORTISING AND BORING TOOLS



No. 177 SPUR MACHINE DRILL

The SPUR MACHINE DRILL is offered as a tool having the durable, economical features of other drills, but fitted with spurs and point so that it will more nearly approach the smooth boring qualities of a bit. If care is used in sharpening, the brad point and spurs may be maintained and the drill will continue to give service until worn too short for required range.

We recommend this tool for use under severe conditions, and particularly where the size of hole to be bored is so small that the double twist bit is not practical. A section of a drill shows thin stock at the center and heavy portions at edge of the twist, and this form gives increased strength in the small sizes.

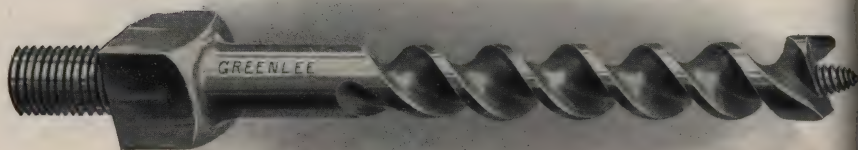
Drills having 4 inch twist or shorter are sold from list as shown and with longer twist at list increased per extra inch or fraction as shown in increment table.

Sizes 8/32 to 16/32 inch carried in stock having twist 4 inches long and with 2 1/4 inch shank.

No. 177 SPUR MACHINE DRILL

LIST PRICE FOR EACH				SIZES IN THIRTY-SECONDS			
Size	4	5	6	7	8	9	10
Price	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05	\$1.05
Increment	\$.15	\$.15	\$.15	\$.15	\$.15	\$.15	\$.15
Size	11	12	13	14	15	16	17
Price	\$1.10	\$1.15	\$1.25	\$1.30	\$1.40	\$1.45	\$1.55
Increment	\$.15	\$.15	\$.15	\$.15	\$.15	\$.15	\$.15
Size	18	19	20	21	22	23	24
Price	\$1.65	\$1.75	\$1.85	\$1.95	\$2.05	\$2.15	\$2.30
Increment	\$.15	\$.16	\$.17	\$.18	\$.19	\$.20	\$.21

MORTISING AND BORING TOOLS



NOS. 163 AND 164 SCREW SHANK DOWEL BITS

No. 163, $\frac{5}{16}$ " x No. 20 THREAD

No. 164, $\frac{7}{16}$ " x No. 14 TH

The sockets of most machines using this type of bit answer to one of two standards—either $\frac{5}{16}$ inch diameter with No. 20 thread or $\frac{7}{16}$ inch diameter with No. 14 thread. All stock tools measure $4\frac{1}{2}$ inches long overall and are of the EXTENSION LIP pattern. Other patterns can be made up to order. The bit is made up of $\frac{1}{2}$ inch threaded shank, $\frac{1}{2}$ inch square, about $\frac{1}{2}$ inch long and the balance twist and screw point.

Accuracy is a particular requirement of any dowel bit. Our SCREW SHANK DOWEL BITS are sized with the same care that is used in all GREENLEE tools and to exact indicated diameter. Dowel rods should be sized with corresponding accuracy, and if variation occurs, it should be noted in ordering bits.

Stock is carried in both the No. 163 and No. 164 types in sizes $\frac{1}{2}$ inch and smaller. Larger sizes or those varying from the stock sizes can be made promptly.

NOS. 163 AND 164 SCREW SHANK DOWEL BITS

		LIST PRICE PER DOZEN			SIZE IN SIXTEENTHS		
Size	3	4	5	6	7	8	
Price	\$7.20	\$7.20	\$7.20	\$7.20	\$ 7.20	\$ 7.20	
Size	10	11	12	13	14	15	
Price	\$8.00	\$8.50	\$9.00	\$9.60	\$10.20	\$10.80	

MORTISING AND BORING TOOLS



No. 178 and 178½ SCREW SHANK DOWEL DRILLS

No. 178, 5/16"xNo. 20 THREAD

No. 178½, 7/16x No. 14 THREAD

Above illustration shows our SCREW SHANK DOWEL DRILL of the TAPER HEAD TYPE. We can also supply this tool with brad point and spurs similar to the drill shown on page 33 and this is known as our No. 179 or No. 179½ SCREW SHANK DOWEL DRILL according to the diameter and pitch of thread on the shank.

These are regularly made 4½ inches long overall. Of this length ½ inch is the threaded shank and ½ inch the square section. This length is supplied on all orders unless otherwise specified.

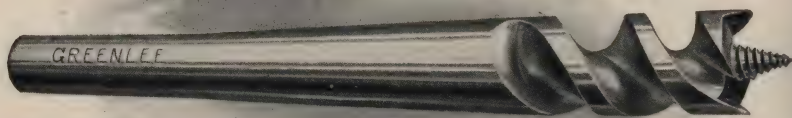
The SCREW SHANK DOWEL DRILL is particularly recommended for boring holes so small in diameter that bits of the double twist type are not practical. Also recommended for general use where a special rugged tool is required. These are used by many for all classes of work on account of long life, although they will not bore quite as freely, nor clear as readily, as the double twist bit.

These are not carried in stock but can be made promptly.

No. 178 and 179 SCREW SHANK DOWEL DRILLS

	LIST PRICE FOR EACH			SIZE IN THIRTY-SECONDS			
Size	4	5	6	7	8	9	10
Price	\$.68	\$.72	\$.75	\$.83	\$.90	\$.98	\$1.05
Size	11	12	13	14	15	16	17
Price	\$1.10	\$1.13	\$1.17	\$1.20	\$1.25	\$1.28	\$1.35
Size	18	19	20	21	22	23	24
Price	\$1.43	\$1.50	\$1.58	\$1.65	\$1.72	\$1.80	\$1.88

MORTISING AND BORING TOOLS



No. 161 AND 162 RELISHING BITS

No. 161, $\frac{3}{8}$ INCH SHANK

No. 162, $\frac{1}{2}$ INCH SHANK

The No. 161 RELISHING BIT is standard for all older GREENLEE SASH RELISHING MACHINES. These are made with the shank straight $\frac{3}{8}$ inch diameter for one-half of its length and tapering to the diameter of the twist the remaining half.

The present GREENLEE RELISHING MACHINE takes bit with $\frac{1}{2}$ inch shank known as the No. 162 RELISHING BIT. Like the older bit this is made with TENSION LIPS and both measure about $5\frac{1}{4}$ inches long overall.

Both types are carried in stock in sizes from $\frac{3}{8}$ inch to $\frac{3}{4}$ inch. They from machine bit list.

No. 160 FELLOE BORING BIT

The name denotes the purpose of these bits. They are carried in stock sizes from $\frac{3}{8}$ inch to $\frac{3}{4}$ inch, all stock tools having 2 inch twist and $\frac{1}{2} \times 3$ shank. FELLOE BITS sell from machine bit list.

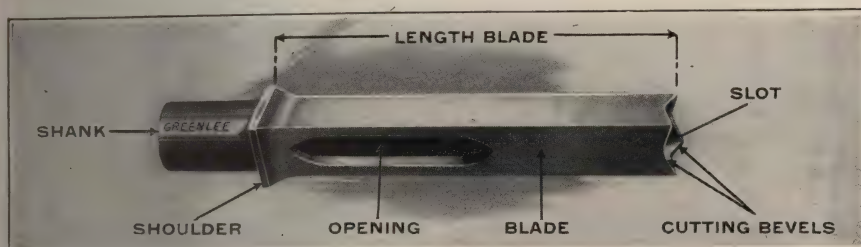


No. 900

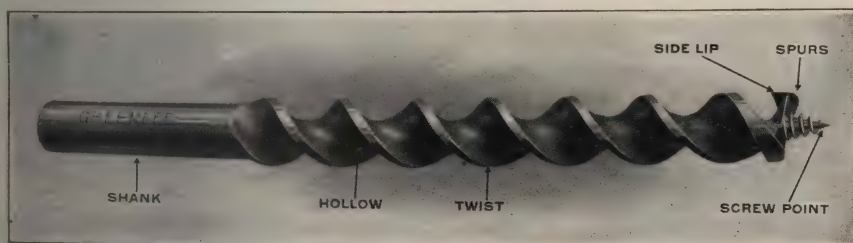
"MEPHISTO" AUGER BIT

ELECTRICIANS' BIT bores very rapidly; designed especially for the use of electricians. Can be used in metal ceiling work either by hand or machine without harming the tool.

MORTISING AND BORING TOOLS



PARTS OF A HOLLOW CHISEL



PARTS OF A MACHINE BIT

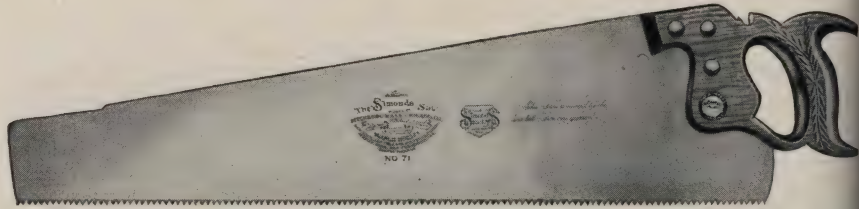


CASTER COUNTERSINK BIT

This Bit is for boring the hole and making the sweep for the caster. It is adaptable for use on any furniture where casters are used. Both holes are made at one operation. This lets the furniture down closer to the floor and makes it look fifty per cent better.

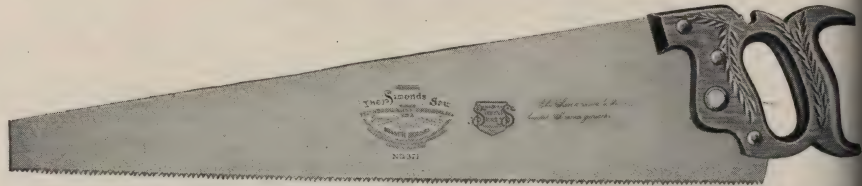
This bit is adjustable for various sizes of casters, cuts end grain wood easily and is easily sharpened and adjusted.

Simonds Blue Ribbon Hand Saws



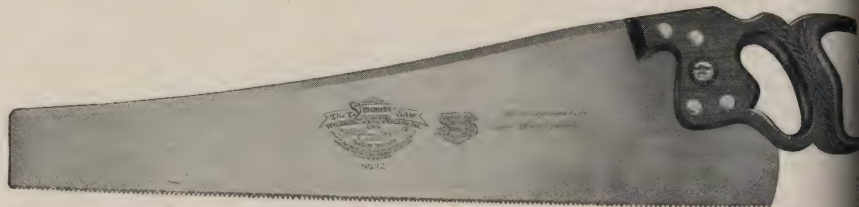
No. 71. Straight Back

Stock Sizes: 22 inch Panel, 8, 9, 10 or 11 point; 24 inch Panel, 7, 8, 9, 10 or 11 point; 26 inch Hand, 7, 8, 9 or 10 point; 26 inch Rip, 5, 5½ or 6 point.



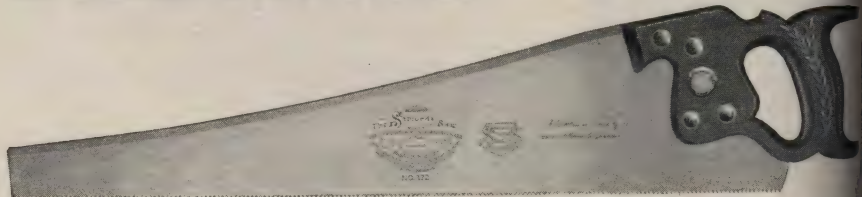
No. 371. Straight Back, Narrow

Stock Sizes: 22 inch Panel, 9, 10 or 11 point; 24 inch Panel, 7, 8, 9, 10 or 11 point; 26 inch Hand, 7, 8, 9, 10 or 11 point; 26 inch Rip, 5, 5½, 6 or 7 point.



No. 72. Skew Back

Stock Sizes: 20 inch and 22 inch Panels, 8, 9, 10 or 11 point; 24 inch Panel, 8, 9, 10 or 11 point; 26 inch Hand, 5, 5½, 6, 7, 8, 9, 10 or 11 point; 20 inch Rip, 7 point; 22 inch Rip, 5½, 6 or 7 point; 24 inch Rip, 5, 5½, 6 or 7 point; 26 inch Rip, 4½, 5, 5½, 6 or 7 point; 28 inch Rip, 3½, 4, 4½, 5, 5½ or 6 point.



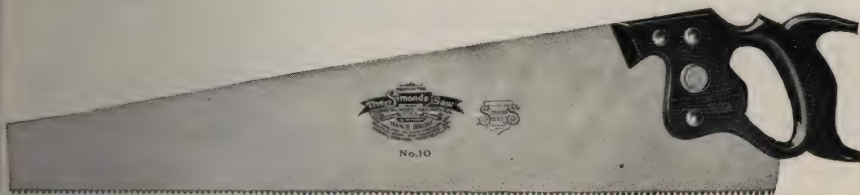
No. 372. Skew Back, Narrow

Stock Sizes: 22 inch Panel, 9, 10 or 11 point; 24 inch Panel, 8, 9, 10 or 11 point; 26 inch Hand, 7, 8, 9, 10 or 11 point; 26 inch Rip, 5, 5½, 6 or 7 point.

See Discount Sheet for Prices

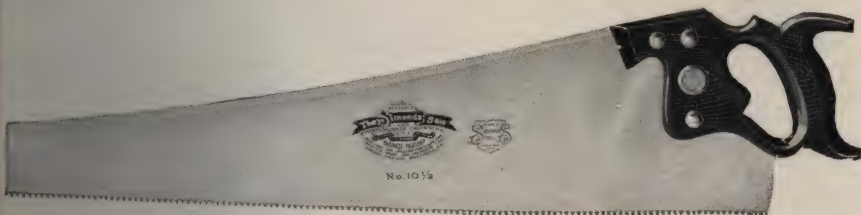
Simonds Hand Saws

Warranted Special Crucible Steel, Simonds Patented Temper



No. 10. Straight Back, Medium Width

Manufacturer's own brand Hand Saw at a price that immediately appeals to those who desire a general purpose saw—such as farmers, manual training students, and the worker around the home. Full taper ground blades, made of selected steel. Polished beech handle. A splendid value at a moderate price. Stock Sizes: 18 inch Panel, 9, 10 or 11 point; 20 inch Panel, 8, 9, 10 or 11 point; 22 inch Panel, 8, 9, 10 or 11 point; 24 inch Panel, 7, 8, 9 or 10 point; 26 inch Hand, 6, 7, 8, 9 or 10 point; 24 inch Rip, 6 or 7 point; 26 inch Rip, 5, 5½, 6 or 7 point.



No. 10½. Skew Back, Full Width

This number is the same quality and finish as the No. 10. Made with full width skew back, selected steel blades. These two saws are covered by the broadest Simonds warranty. The quality of material and workmanship is unequalled for the price. Stock Sizes: 16 inch Panel, 9 or 10 point; 18 inch Panel, 9, 10 or 11 point; 20 inch Panel, 8, 9, 10 or 11 point; 22 inch Panel, 8, 9, 10 or 11 point; 24 inch Panel, 7, 8, 9, 10 or 11 point; 26 inch Hand, 5, 5½, 6, 7, 8, 9, 10 or 11 point; 28 inch Hand, 5, 6, 7 or 8 point; 20 inch Rip, 7 point; 22 inch Rip, 5½, 6 or 7 point; 24 inch Rip, 5, 5½, 6 or 7 point; 26 inch Rip, 4½, 5, 5½, 6 or 7 point; 28 inch Rip, 3½, 4, 4½, 5, 5½ or 6 point.

See Discount Sheet for Prices

Every Saw bearing the Simonds Trade-Mark is absolutely guaranteed against any and all defects, and is made to retail at a moderate price.

Crucible Steel Back Saw



No. 95. Crucible Steel Mitre Box Saws, Apple Handle, Polished Edges, Blued Steel Back, Set and Hand Filed, ready for use. Warranted. Toothed Edge, 2 inches shorter than the full length of Blade.

Furnished in the following sizes.

4 Inches under Back: 18, 20, 22, 24, 26, 28, 30, 32 inches.

5 Inches under Back: 24, 26, 28, 30, 32 inches.

6 Inches under Back: 22, 24, 26, 28, 30, 32 inches.



No. 96. Crucible Steel Blade, Apple Handle, Polished Edges, Blued Steel Back, Set and Hand Filed, ready for use. Warranted.

8 10 12 14 16 18 inches

Packed one-third dozen in box

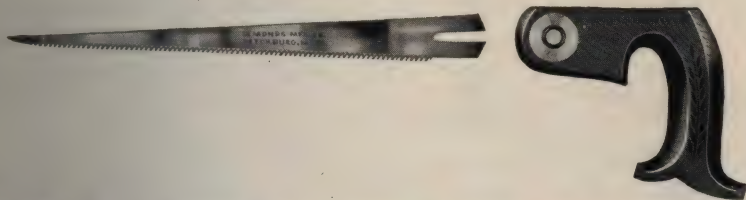
See Discount Sheet for Prices

Simonds Compass Saws



No. 78. Simonds Interchangeable Compass Saw. Plain handle with polished edges. Metal ferrule with screw adjustment, allowing interchange of blades. Blades held firmly in handle. Tooth edge can be faced either up or down. Packed one-half dozen in a box.

Made in the following lengths: 8, 10, 12, 14 and 16 inches.



No. 81. Simonds Compass Saw with patented adjustable handle.

Made in the following lengths: 10, 12, 14, 16, 18 and 20 inches.



No. 86. Interchangeable Compass Saw. Handle and blade complete.

Made in the following lengths: 10, 12, 14, 16, 18 and 20 inches.



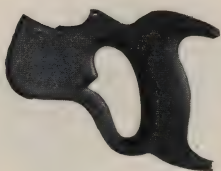
No. 86B Interchangeable Compass Blades.

Made in the following lengths: 10, 12, 14, 16 and 18 inches.

Above Saws packed one-half dozen in box

See Discount Sheet for Prices

Handles and Screws



Back Saw Handles

For style of handle, refer to saw bearing same number. Back Saw handles are furnished to fit blades from 8 to 16 inches in length.

Handles for Saw 98—Beech, slit only.

Handles for Saw 96—Beech, slit only.

Above packed one dozen in box.

Saw Screws



No. 10. Simonds



No. 20. Simonds.

No. 10. Simonds, Small Brass.

No. 20. Simonds, Large Brass.



No. 1. Plain



No. 2. Plain

No. 1. Plain, Small Brass.

No. 2. Plain, Large Brass.



No. 10. Eagle



No. 20. Eagle

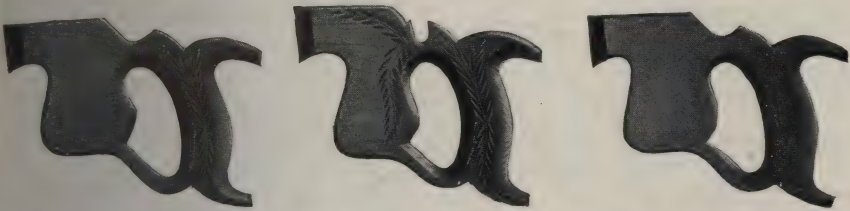
No. 10. Eagle, Small Nickel.

No. 20. Eagle, Large Nickel.

All above packed half gross in box.

See Discount Sheet for Prices

Hand Saw Handles



For styles of handles refer to saws bearing the same numbers. Handles are furnished, slit without holes. Screws are not included unless specified. Handles are supplied to fit blades from 16 to 28 inches in length.

Handles for Hand Saw:

No. 72—Carved Applewood
No. 61—Carved Applewood
No. 71—Carved Applewood
No. 10—Beech

No. 10½—Beech
No. 25—Beech Carved
No. 42—Beech
No. 49—Beech Varnished Edges.

Compass Saw Handles



Handles for Compass Saw

No. 88—Beech
No. 116—Applewood

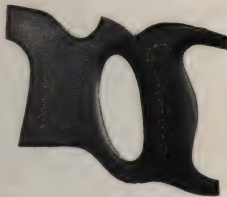
Pruning Saw Handles



Handles for Pruning Saw

No. 74—Beech
No. 75—Beech

Butcher Saw Handles



Handles for Butcher Saw

No. 250—Beech, not drilled or slit.
No. 251— “ “ “ “ “
No. 253— “ “ “ “ “
No. 255— “ “ “ “ “

For styles of handles, see saw bearing same number.

All of the above packed one dozen in a box

See Discount Sheet for Prices



Simonds Machine Knives

We make any kind of a knife for any kind of a machine for any kind of work, and will guarantee the very best possible results relative to temper, uniformity, cutting qualities, finish, and length of service.

When Ordering Knives

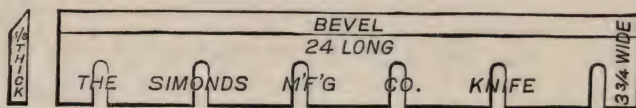
State number of knives wanted, number of sets, number in set, length, width, thickness, name and make of machine, and kind of wood to cut.

The cutting edge always constitutes the length of the knife.

When possible, furnish a pattern. Place the knife face down on the paper, mark around to show the length of the knife and size and position of slots, and be sure to state the width and thickness, as shown in diagram; also state the number of knives in set, and the temper required, whether high, to grind only, medium, to file slowly, or low, to file easily.

We make a wooden pattern like each paper pattern sent us, stamp the same with name of party ordering and date the order is received, and preserve for future use.

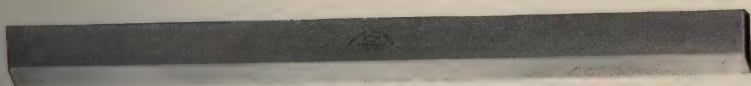
It is well to send an old knife or a pattern showing the holes or the slots. This is particularly true in ordering Planer Knives, Paper Knives, Barker and Chipper Knives, etc.



Simonds Knives



Planer Knife



High Speed Steel Knife



Welded High Speed Steel Knife



Back Bevel Planer Knife



Chair Bottom Knife



Moulding Knife



Beveled Steel

Simonds Welded High Speed Steel Knife



Of decided interest to the man who uses the old style carbon steel planer knives is this new Simonds achievement—the welding of High Speed Steel to a softer backing.

As you know, thick woodworking knives have the cutting edge welded on to a softer metal backing. Heretofore this cutting edge has been merely a higher grade steel.

The best steel for a cutting edge is what is known as High Speed Steel.

Up to the present it has been considered impossible to weld High Speed Steel to a soft metal backing.

Whenever this edge was placed on a knife it has been necessary to braze it on. This is all right when the knife doesn't need to be heated again to a high temperature for when this is done the braze just naturally melts apart.

A "Welded" knife, on the other hand isn't so affected when heated to a high temperature for, as you know, a weld is practically a fusing of the two metals into one whole.

Now why does a knife need to be heated?

Heating is the method by which a steel cutting edge is tempered.

Temper is necessary so that every spot along the knife edge will cut exactly the same—no hard and soft spots to mar your lumber.

Temper is necessary if the knife is to hold its cutting edge.

Holding the cutting edge means less grinding, less changing of knives, less wear on the knives, more production, better grade stock.

That's why the Simonds Welded High Speed Steel Thick Knives will last from three to five or more times longer than the ordinary Carbon Steel Thick Knives.

That is why you want a genuine Simonds "Welded" Knife and not the ordinary "Brazed" High Speed Steel Knife.

We are, so far as we know now, the only manufacturers who have solved, properly, this problem of "welding" High Speed Steel Cutting Edges to Machine Knives. Send your orders to our nearest branch office for at least a trial set of these knives. Send pattern and give full instructions as to length, width, thickness, number to set, beveled or square back, make of machine, whether for slotted or solid heads, etc.

Simonds Knives



Beader Bits



Straight Bit



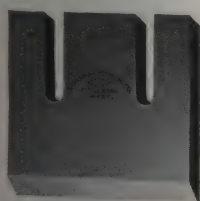
Tongue and Groover Bit



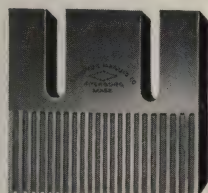
Washboard Knife



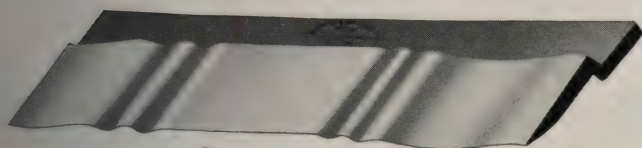
Double Cut



Excelsior Knife



Straight Knife



Gauge Lathe Knife



Mitre Knives

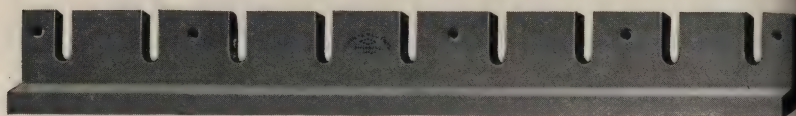


Cope Cutters

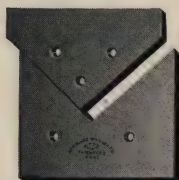


Untempered
Moulding
Blank

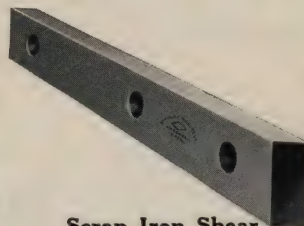
Simonds Shears and Slicers



Tack Shears



Angle Shears



Scrap Iron Shear



Boiler Plate Shears



Vegetable Slicers

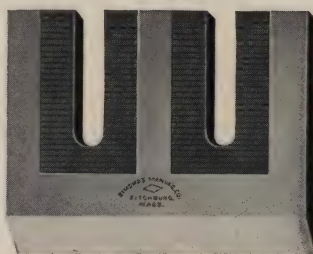
Simonds Knives



Chipper Knife



Hog Knife



"Griptight" Hog Knife



Beveled End Chipper Knives
Made with one or more slots



Barker Knife



Barker Knife

Simonds Knives



Veneer Knife

When ordering Veneer Knives be sure to specify the bevel desired



Stave Knife



Jointer Knife



Shingle Knife



Stave Jointer Knife



Tight Barrel Knife



Spoke Knife



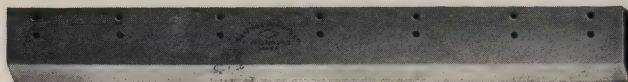
Slack Barrel Knife



Jointer Knife



Stop Cutter Knife



Paper Cutter Knife

STICKER AND PLANER KNIVES

We carry a complete stock of straight STICKER KNIVES in all standard sizes.

We also carry HIGH SPEED PLANER KNIVES.

We have in stock all standard sizes of HIGH SPEED WOOD-WORKING

SHAPER STEEL BEVELED AND SURFACED

Furnished in 24 inch lengths. Shorter lengths extra for cutting.

HIGH SPEED WOODWORKING SHAPER STEEL

PRICE PER INCH

		1 in.	1½ in.	2 in.	2½ in.	3 in.	3½ in.	4 in.
Thickness	¼"	\$.30	\$.38	\$.45	\$.54	\$.63	\$.70	\$.80
	⅝"	\$.33	\$.42	\$.50	\$.60	\$.70	\$.78	\$.88

MUNSON BALANCING MACHINES



MUNSON BALANCING MACHINES FOR PLANER, STICKER, SHAPER OR
HOG KNIVES

**Balance Your Knives Endways and also for Total Weight.
The Munson Balance Does Both.**

The Most Perfect Knife Balance Manufactured. Will Balance Endways
Total Weight at Same Time. Indispensable for Accurate Work.

It saves time, labor, repairs, knives, machines, money.

Slides "C" "C" will instantly and correctly center any knife from 41
down, and slides move but 3 inches.

Pointer "A" will show if one knife is heavier than the other.

Pointer "B" will show if one end of a knife is heavier than the other
and indicate which end. For a correct balance both of the errors are
corrected.

Will do its work in from one-third to one-tenth the time of any
balance.

No. 104 —Munson Balance for knives up to 41 inches, Approx.
Wt., 150 Lbs. Factory Price.

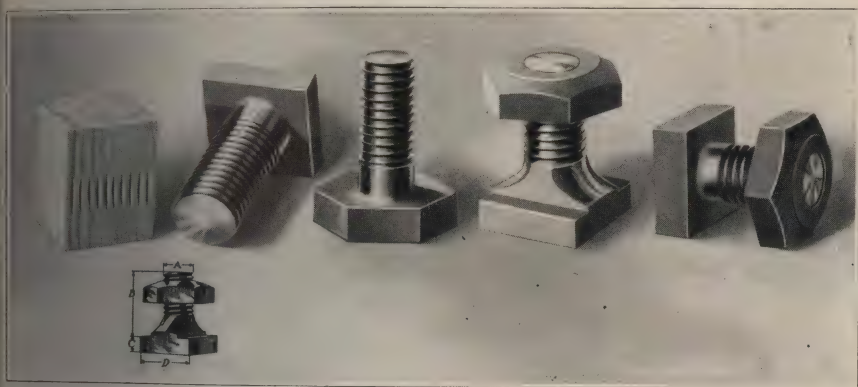
No. 104A—Munson Balance for knives up to 60 inches, Approx.
Wt., 175 Lbs. Factory Price.

These balances are as sensitive as a druggist's scale, are simple, all
are accurately balanced, all the bearings are of hardened steel, and other
of machine are made of steel, malleable, gray iron or brass, as the case de-

SMALL KNIFE BALANCE SCALE



SPECIAL PLANER, JOINTER AND CYLINDER BOLTS



We are in a position to furnish all kinds of SPECIAL BOLTS and SCREW MACHINE products promptly at reasonable prices.

Send samples or correct sizes with orders and they will have our usual prompt attention.

SQUARE HEAD CYLINDER BOLTS
REINFORCED STICKER BOLTS AND NUTS

HEXAGON HEAD CYLINDER BOLTS
COMMON STICKER BOLTS AND NUTS

When sticker bolts are wanted, fill in sizes A, B, C, D, and mention whether common or reinforced. When cylinder bolts are wanted, send old sample or give all sizes, sending impression of thread in piece of soft wood. Prompt service.

WE ARE EQUIPPED TO GRIND

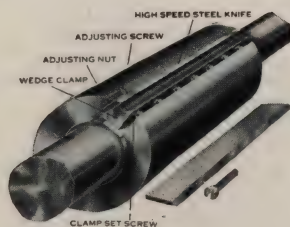
PLANER KNIVES,

SHEAR BLADES and

PAPER KNIVES

UP TO 88 INCHES LONG

ROUND SAFETY CYLINDERS



For—

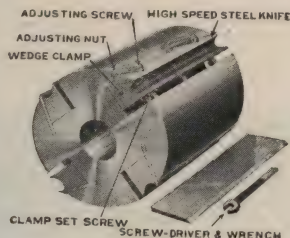
HAND JOINTERS,
SURFACERS,
STICKERS,
SHAPERS,
TENONERS and
GLUE JOINTERS.

THE PORTER cylinders are made of high carbon, forged machinery accurately ground and balanced. The opening for wedges, knives and screws is just sufficient to allow room (from $1\frac{1}{8}$ in. to $1\frac{1}{4}$ in.) for same. Screws are placed at 3 in. intervals and clamp the knives positively. Adjusting screws to hold knives in place are practical, simple and positive. Cylinders are regularly furnished for two knives in cutting diameters $3\frac{1}{2}$ ins. and up; three knives in cutting diameters $3\frac{1}{2}$ ins. and up; four knives in cutting diameters $4\frac{1}{2}$ ins. and up; six knives in cutting diameters 6 ins. and up.

Modern practice calls for increased production or better quality of work and either or both can be obtained by using Multiple Knife Cylinders.

Cylinders are regularly furnished with one set of knives, pulley and wedge. Prices depend upon cutting width, cutting diameter, number of knives, how equipped, and this information must be given when quotations are desired.

ROUND SAFETY CYLINDERS (CONT.)



For HAND JOINTERS,
SURFACERS,
STICKERS,
SHAPERS,
TENONERS and
GLUE JOINTERS.

The Slip-on-head illustrated is made for Jointers, Stickers and Shapers. The diagram shows one made for carrying four knives. The cutting diameter must be 4 in. or larger to carry four knives, and 6 in. or larger for six knives. The smallest cutting diameter is 3½ in.

Irregular shaped knives for moldings can be used by inserting in place of the straight knives. All knives are regularly H. S. W. Steel.

The modern fast feed molder is now equipped with heads that carry from 4 to 6 high speed knives. "The Porter" head has the advantage of other types of fast feed heads because it is also provided with chip breakers, which prevents spring of the stock. Special bits are also furnished in high speed or carbon steel and to order only. These heads are also made self-centering (for clamp- ing in any position on the arbor) to order only at an extra cost. Unless otherwise specified, all heads are regularly furnished with 1 set of knives, bolts and wrench.

Prices, depending upon the width, diameter and number of knives, will be readily given upon application.

When ordering Slip-on-heads be very careful to give the cutting width, cutting diameter, number of knives and diameter of spindle upon which the head is to be used. If self-centering, note the direction head revolves.

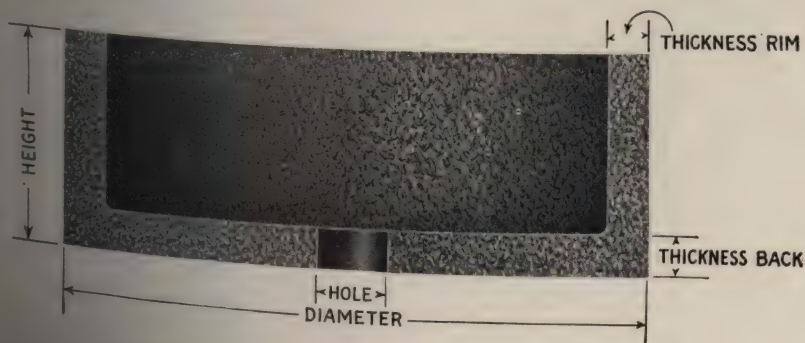
ABRASIVES



ABRASIVE GRINDING WHEELS.

Abrasive Grinding Wheels are made of BOROLON or ELECTROLON. Borolon and Electroton are products of the electric furnace, but are rather different in chemical composition, different in structure and character of the grain. Borolon is the most efficient cutting material known for materials of high tensile strength, such as all kinds of steel, but is not so good, however, for grinding many other kinds of metal. Electroton is best adapted for grinding materials of low tensile strength, such as cast or chilled iron, brass, bronze, granite, marble, etc. With the use of the above abrasive materials we are prepared to furnish wheels for practically every class of grinding. Grinding wheels are made with each of these abrasive materials by four different processes of manufacture, namely, Vitri-fied, Silicate, Elastic and Rubber-bonded.

CUP WHEELS



VITRIFIED AND SILICATE.
SUBJECT TO DISCOUNT.

[illegible]

ABRASIVES

LIST PRICE—STRAIGHT WHEELS—(Continued)
VITRIFIED AND SILICATE.

Diameter	Thickness of Wheels in Inches								
	1¾	2	2¼	2½	2¾	3	3¼	3½	3¾
1	\$1.40	\$1.55	\$1.70	\$1.85	\$2.00	\$2.15	\$2.25	\$2.40	\$2.55
1½	1.65	1.80	2.00	2.15	2.35	2.50	2.70	2.85	3.05
2	2.00	2.20	2.35	2.55	2.75	2.95	3.15	3.35	3.55
2½	2.25	2.45	2.70	2.90	3.15	3.35	3.60	3.80	4.00
3	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50
3½	2.80	3.05	3.35	3.60	3.90	4.15	4.45	4.70	5.00
4	3.35	3.70	4.10	4.45	4.80	5.10	5.45	5.75	6.10
4½	3.95	4.35	4.80	5.20	5.60	6.00	6.40	6.75	7.15
5	4.55	5.00	5.45	5.90	6.35	6.85	7.30	7.70	8.15
6	5.90	6.50	7.10	7.70	8.40	9.00	9.60	10.20	10.80
7	7.50	8.25	9.00	9.85	10.70	11.50	12.25	13.00	13.75
8	9.30	10.30	11.30	12.35	13.35	14.40	15.40	16.45	17.50
9	11.40	12.70	14.00	15.25	16.50	18.00	19.50	21.00	22.50
10	14.00	15.75	17.50	19.25	21.00	22.75	24.50	26.25	27.50
12	17.85	20.00	22.35	24.75	27.25	29.50	31.90	34.25	36.50
14	24.20	27.15	30.35	33.60	36.85	40.00	43.30	46.50	49.75
16	31.70	35.70	39.60	43.55	47.45	51.35	55.25	59.20	63.10
18	39.50	44.50	49.50	53.90	58.55	63.25	68.00	72.65	77.30
20	47.85	53.75	59.40	65.00	70.70	76.40	82.00	87.70	93.35
22	58.75	65.90	73.00	80.00	87.00	94.00	101.00	108.00	115.10
24	70.00	78.00	87.00	95.00	104.00	112.00	120.00	129.00	137.00
26	80.00	90.00	101.00	111.00	122.00	133.00	143.00	154.00	165.00
28	97.00	111.00	123.00	136.00	148.00	160.00	171.00	183.00	194.00
30	107.00	121.00	135.00	149.00	164.00	178.00	192.00	206.00	221.00
32	124.00	141.00	158.00	175.00	192.00	210.00	225.00	240.00	255.00
34	143.00	162.00	182.00	201.00	221.00	240.00	256.00	273.00	289.00
36	164.00	185.00	207.00	229.00	248.00	266.00	285.00	303.00	322.00
38	.....	208.00	229.00	250.00	271.00	292.00	312.00	333.00	354.00
40	.....	231.00	254.00	277.00	300.00	323.00	346.00	369.00	392.00
42	.....	.....	.....	306.00	332.00	357.00	383.00	409.00	434.00
44	.....	.....	.....	337.00	366.00	394.00	423.00	451.00	480.00
46	.....	.....	.....	369.00	401.00	432.00	464.00	495.00	527.00
48	.....	.....	.....	402.00	437.00	471.00	506.00	541.00	575.00
50	.....	.....	.....	.....	.....	512.00	550.00	588.00	626.00
52	.....	.....	.....	.....	.....	553.00	595.00	637.00	679.00
54	.....	.....	.....	.....	.....	595.00	641.00	687.00	732.00
56	.....	.....	.....	.....	.....	638.00	688.00	738.00	788.00
58	.....	.....	.....	.....	.....	682.00	737.00	791.00	846.00
60	.....	.....	.....	.....	.....	727.00	787.00	846.00	906.00

Silicate Process only

ABRASIVES

LIST PRICE—STRAIGHT WHEELS—(Continued)
VITRIFIED AND SILICATE.

Diameter	Thickness of Wheels in Inches							
	4	4¼	4½	4¾	5	5¼	5½	5¾
1	\$2.70	.....	.....	.....	.....	.....	.....	.....
1½	3.20	\$3.40	\$3.55	\$3.75	\$3.90	\$4.10	\$4.25	\$4.45
2	3.75	4.00	4.20	4.45	4.65	4.85	5.10	5.30
2½	4.25	4.50	4.75	5.00	5.25	5.50	5.75	6.00
3	4.75	5.00	5.35	5.60	5.90	6.20	6.50	6.75
3½	5.25	5.55	5.90	6.20	6.55	6.85	7.20	7.50
4	6.50	6.90	7.30	7.65	8.00	8.45	8.85	9.20
4½	7.60	8.00	8.50	8.95	9.40	9.85	10.30	10.75
5	8.65	9.25	9.70	10.20	10.70	11.20	11.75	12.25
6	11.40	12.00	12.75	13.40	14.10	14.75	15.45	16.10
7	14.75	15.65	16.55	17.40	18.30	19.15	20.00	20.90
8	18.60	19.70	20.80	21.90	23.00	24.10	25.20	26.30
9	24.00	25.30	26.75	28.15	29.60	31.00	32.45	33.85
10	29.25	30.95	32.70	34.45	36.20	37.90	39.65	41.40
12	39.00	41.30	43.65	45.95	48.30	50.60	52.95	55.25
14	53.00	56.10	59.25	62.40	65.55	68.70	71.80	74.95
16	67.00	71.00	74.95	78.90	82.90	86.85	90.85	94.80
18	82.00	96.85	91.70	96.60	101.50	106.35	111.20	116.10
20	99.00	104.85	110.75	116.60	122.50	128.35	134.25	140.10
22	122.10	129.35	136.60	143.85	151.10	158.35	165.60	172.85
24	145.00	154.00	162.00	171.00	180.00	188.00	197.00	205.00
26	176.00	186.00	197.00	207.00	218.00	228.00	239.00	249.00
28	205.00	217.00	229.00	241.00	253.00	266.00	278.00	291.00
30	235.00	249.00	263.00	276.00	290.00	304.00	318.00	332.00
32	270.00	286.00	302.00	318.00	334.00	350.00	366.00	382.00
34	305.00	323.00	341.00	359.00	377.00	395.00	413.00	431.00
36	340.00	361.00	382.00	402.00	422.00	442.00	462.00	482.00
38	375.00	397.00	419.00	441.00	463.00	485.00	507.00	529.00
40	415.00	439.00	463.00	487.00	511.00	535.00	559.00	584.00
42	460.00	487.00	514.00	541.00	568.00	595.00	622.00	649.00
44	508.00	538.00	568.00	598.00	628.00	658.00	688.00	718.00
46	558.00	591.00	624.00	657.00	690.00	723.00	756.00	789.00
48	610.00	646.00	682.00	718.00	754.00	790.00	826.00	862.00
50	664.00	703.00	742.00	781.00	820.00	859.00	898.00	937.00
52	720.00	762.00	804.00	846.00	888.00	931.00	974.00	1017.00
54	778.00	824.00	870.00	916.00	962.00	1008.00	1054.00	1100.00
56	838.00	887.00	936.00	985.00	1034.00	1084.00	1134.00	1184.00
58	900.00	953.00	1006.00	1059.00	1112.00	1165.00	1218.00	1271.00
60	965.00	1022.00	1079.00	1136.00	1193.00	1250.00	1307.00	1364.00

Silicate Process only

ABRASIVES

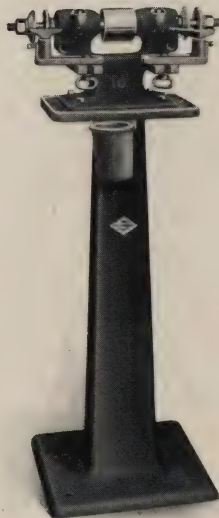
LIST PRICE—STRAIGHT WHEELS—(Continued)

SHELLAC AND RUBBER

SUBJECT TO DISCOUNT.

Diameter	Thickness of Wheels in Inches									
	1/8	1/4	3/8	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2
1	\$.50	\$.55	\$.70	\$.75	\$.80	\$.90	\$.95	\$1.00	\$1.20	\$1.35
1 1/2	.55	.65	.80	.90	.95	1.05	1.10	1.20	1.40	1.60
2	.70	.80	.90	1.00	1.10	1.20	1.30	1.40	1.60	1.85
2 1/2	.80	.90	1.10	1.20	1.30	1.40	1.50	1.60	1.80	2.10
3	.90	1.00	1.25	1.35	1.45	1.60	1.70	1.80	2.10	2.50
3 1/2	1.05	1.15	1.50	1.60	1.75	1.85	2.00	2.10	2.50	3.00
	1.25	1.35	1.75	1.90	2.10	2.25	2.45	2.60	3.15	3.75
4 1/2	1.40	1.55	2.00	2.30	2.55	2.80	3.10	3.40	4.00	4.75
5	1.60	1.80	2.25	2.70	3.10	3.50	4.00	4.40	5.00	5.90
6	2.00	2.30	2.75	3.40	4.00	4.65	5.25	5.90	6.50	7.60
7	2.50	2.80	3.40	4.20	5.00	5.80	6.60	7.40	8.00	9.30
8	3.00	3.40	4.10	5.10	6.00	7.00	8.00	9.00	9.50	11.00
9	3.50	4.00	4.90	6.00	7.20	8.40	9.55	10.70	11.00	12.70
10	4.00	4.65	5.80	7.15	8.50	9.80	11.15	12.50	13.00	14.90
12	5.00	5.65	7.00	8.70	10.40	12.10	13.80	15.50	17.50	20.25
14	6.00	6.65	8.50	10.70	12.90	15.10	17.30	19.50	24.00	27.90
16	8.00	8.50	11.00	13.70	16.40	19.10	21.80	24.50	30.50	35.45
18	.....	10.00	15.00	18.00	21.00	24.00	27.00	30.00	37.00	43.00
20	.....	13.00	20.00	23.00	26.00	29.00	32.00	35.00	44.00	51.00
22	.....	.....	.....	28.00	31.00	35.00	38.00	42.00	52.00	60.00
24	.....	.....	.....	33.00	37.00	41.00	45.00	50.00	60.00	70.00
26	.....	.....	.....	.....	.....	49.00	54.00	59.00	70.00	82.00
28	.....	.....	.....	.....	.....	57.00	62.00	68.00	81.00	95.00
30	.....	.....	.....	.....	.....	.....	.....	78.00	93.00	109.00
32	.....	.....	.....	.....	.....	.....	.....	90.00	108.00	126.00
34	.....	.....	.....	.....	.....	.....	.....	105.00	125.00	146.00
36	.....	.....	.....	.....	.....	.....	.....	125.00	149.00	173.00

VALLEY CITY GRINDING MACHINE



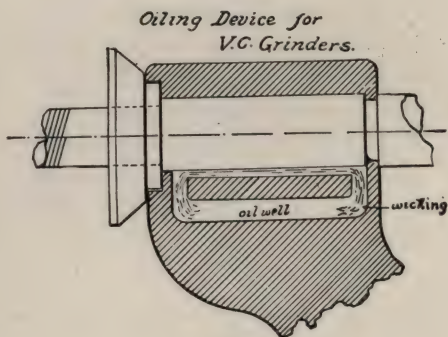
No. 10.



No. 12 Regular Equipped with Valley Protection and Exhaust Hoods



Nos. 2 and 4.



No. 7 Plain

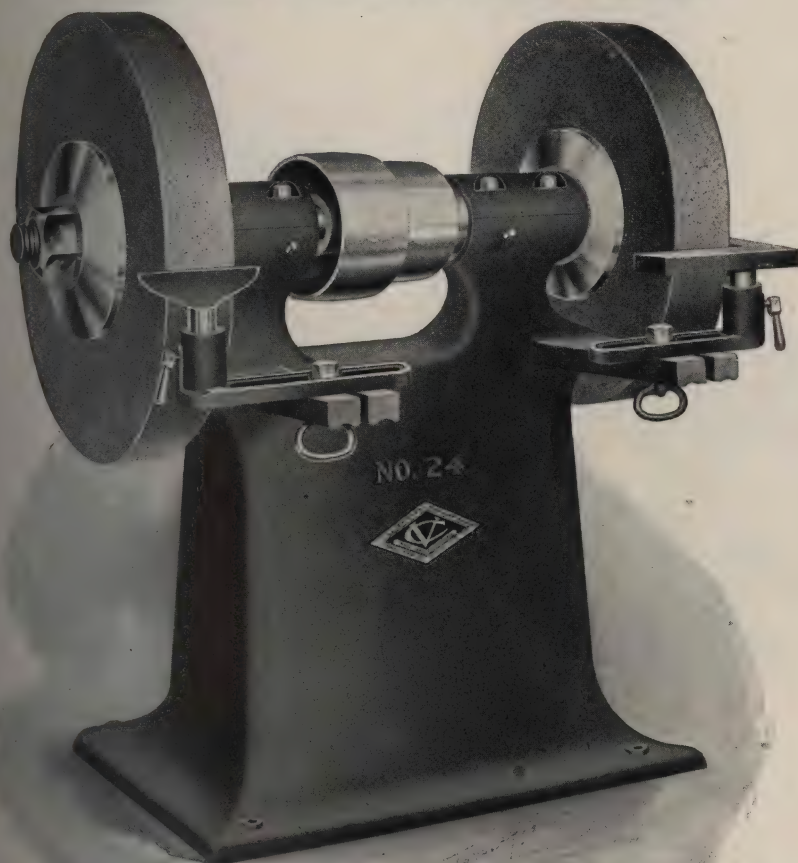
All Valley City machines are of rigid and heavy construction and are adequate for the work for which they are intended. The wick oiling used is illustrated in the outline engraving above.

All bearings are of large area and high grade babbitt metal is used.

The spindle construction is heavy and adequate, the spindles themselves are ground to a fit and are of liberal diameters. The arbors are equipped with set collars to take care of end play.

Not only in construction do we claim superiority, but we take pride in the manner in which they are finished for the market and every precaution is taken to make them strictly high-grade tools.

VALLEY CITY GRINDING MACHINES



V. C. GRINDING MACHINERY.

SPECIFICATIONS.

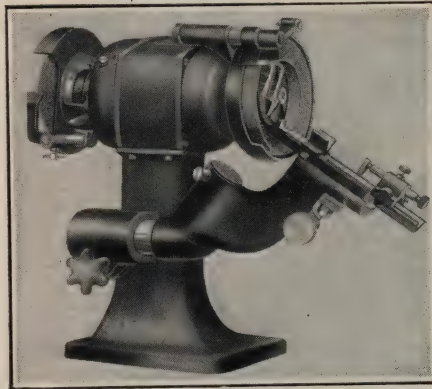
Size of Wheels Inches	Entire Length of Spindle Inches	Length of Bearings Inches	Diam. of Spindle in Bearing Inches	Diam. of Spindle between Flanges Inches	Distance between Wheels Inches	Height from Table to Center of Spindle Inches	Size of Pulley on Spindle Inches	Speed of Counter- shaft R. P. M.	Approx. Shp. Wt. of Head Pounds
10x1	11½	6½	7/8	¾	----	6	2¼x2¼	595	20
14x1¼	14	8½	7/8	¾	----	8	3 x2½	570	30
6x ½	9½	13¼	5/8	½	6	4½	1¾x1¾	500	6
7x ¾	11	2	5/8	½	7	5	2 x2	595	14
8x1	16½	3	¾	5/8	10	6	2½x2½	595	30
10x1½	19	3½	7/8	¾	12	7	3 x2¾	570	50
12x2	24	4	1¼	1	16	8	4 x3¾	512	85
14x2½	26	5	1½	1½	18	8½	4½x4½	512	110
16x3	35	6	1¾	1¾	25	11	5&6x4	500	190
18x3	37	6	1¾	1¾	26	11	6x5x4½	450	210
24x4	48	10	2¼	2	33	----	7½x6½x4½	400	725

VALLEY CITY GRINDING MACHINES

GRAND RAPIDS DRILL GRINDER, STYLE A-7-T.

(Motor Driven)—Capacity No. 52 to $\frac{3}{4}$ in. Drills.

SPECIFICATIONS.



Spindle speed	1750 R.
Diameter of grinding wheel	8
Size of motor	$\frac{1}{2}$
Height of center of spindle	
Floor space	
Diameter of main frame stud,	2
Swivel bearings	$1\frac{1}{2}$
Net weight	1
Crated weight	1
Boxed weight	2
Cubic feet boxed	

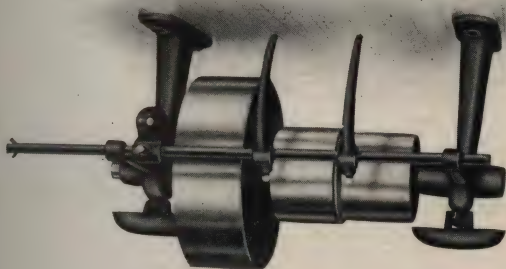
GRAND RAPIDS No. 1 UNIVERSAL CUTTER AND TOOL GRINDER.

SPECIFICATIONS.

Swings between centers, diameter	$9\frac{1}{2}$ in.
Swings between centers, length	20 in.
Longitudinal movement	15 in.
Transverse movement	7 in.
Vertical movement	$6\frac{3}{4}$ in.
Capacity for face milling cut- ters, diameter	12 in.
Weight, net	525 lbs.
Weight, crated	610 ft
Boxed for export, measures	20 cu. ft.

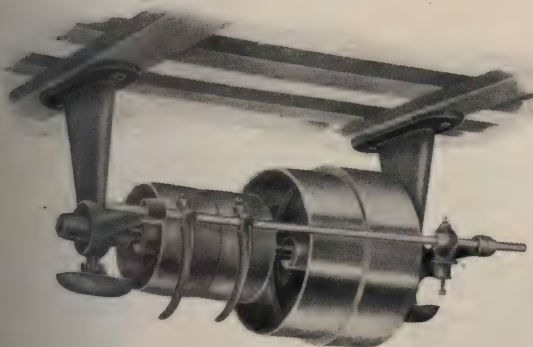


COUNTERSHAFTS



SPECIFICATIONS

COUNTERSHAFT NUMBER	2	4	6	7	8	10	12	14
Length of countershaft, inches..	16	18	10 ½	16	16	18	24	24
Diameter of countershaft, inches	7/8	1	¾	¾	¾	1	1 1/16	1 3/16
Size of drive pulley, inches.....	8x2	10x3	7 ½x1 ½	8x2	8x2	10x3	12x4	12x4
Size of tight and loose pulley, in.	4x1 ¾	5x3	3x1 ½	4x1 ¾	4x1 ¾	5x3	6x4	6x4
Top of hanger, inches.....	5	6	5	5	5	6	9	9
Approximate net weight, lbs.....	30	40	14	30	30	40	80	80



COUNTERSHAFT NUMBER	16	18	24	10 Buffer	12 Buffer	14 Buffer	16 Buffer	18 Buffer
Length of Countershaft, inches..	32	32	32	18	24	24	32	32
Diameter of countershaft, inches	1 1/16	1 1/16	1 1/16	1	1 3/16	1 3/16	1 1/16	1 1/16
Size of drive pulley, inches.....	12 & 13x4	12 & 13x4	12 & 13x4	10x3	12x4	12x4	16x6	16x6
Size of tight and loose pulley, in.	8x4	8x4	8x4 ½	5x3	6x4	6x4	8x4 ½	8x4 ½
Top of hanger, inches.....	10	10	10 ½	6	9	9	10 ½	10 ½
Approximate net weight, pounds	130	130	200	40	80	80	200	200

GRINDING WHEEL DRESSERS



REGULAR HUNTINGTON TYPE OF WHEEL DRESSER.



HOODED OR SAFETY TYPE.

— * * * —

THE SHERMAN DRESSER.



A DURABLE DRESSER FOR HARD, COARSE, OR LARGE WHEELS.

— * * * —

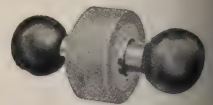


SHERMAN MAGAZINE DRESSER

— * * * —



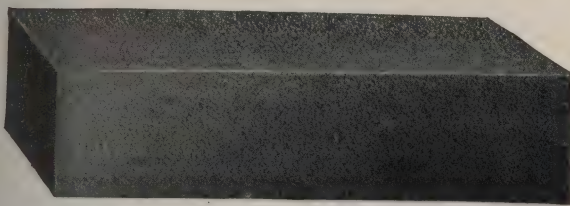
TOOL POST DRESSER.



METCALF HAND DRESSER

TRULY a WONDERFUL dresser for wheels up to 12 or 14 inches diameter will true and shape an emery wheel almost like magic, will keep the wheel CLEAN and COOL CUTTING as will no other dresser made. Once used indispensable.

BOROLON RUBBING BRICKS

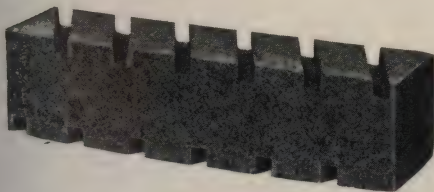


UNFINISHED.

Size	List Price per dozen	Size	List Price per dozen
4x1x $\frac{1}{4}$	\$2.40	6x2x2	\$13.80
4x1x $\frac{1}{2}$	2.40	6x3x2	19.20
4x2x $\frac{1}{2}$	3.60	6x3x3	27.00
4x2x1	6.00	8x2x1	9.60
4x2x2	9.60	8x2x2	17.40
4x3x2	13.80	8x3x2	22.80
4x3x3	19.20	8x3x3	36.00
4x4x4	33.00	8x4x2	33.00
6x2x $\frac{1}{2}$	5.40	8x4x3	45.60
6x2x1	7.20	8x4x4	60.00

The above sizes are more commonly used for cleaning castings and other rough work. Bricks for such work are mostly made in coarse grain. We can, however, furnish them in any grain from the coarsest to the finest and in special sizes as well. They are not squared up and dressed, but are furnished just as they come from the kilns.

ELECTROLON RUBBING BRICKS FOR CONCRETE WORK.



Fluted bricks have been found to be satisfactory for the rubbing down of concrete. They are more efficient than sandstone and give much longer life by having the flutes in the bricks a faster cutting action is produced and also allows a clearance for the material removed.

Size	List Price per dozen
8x3x3	\$36.00
8x2x2	17.40

ABRASIVES



GRAIN SIZES

Borolon grain is crushed and graded in all standard sizes. The numbers determined by the sieve or screen through which the material passes in process of manufacture.

Borolon grain stock sizes ready for immediate shipment are as follows:

NUMBERS				
8	10	12	14	16
24	30	36	46	54
70	80	90	100	120
180	220	F	FF	FFF

UNIFORMITY OF SIZES.

Inspection methods combined with scrupulous care in manufacture maintain a uniformity of grain size. Every precaution to produce uniformity insofar as is commercially possible, is the watch-word of every manufacturing operation in the Abrasive Company plant.

SERVICE.

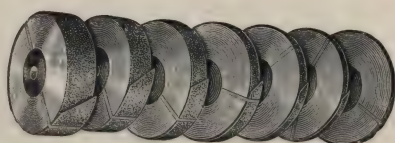
The Abrasive Company, through its extensive sales organization, engineering department, agents and dealers, is prepared to render beneficial service to its users. Submit your polishing problems to them for careful study and attention on the assurance that you are placed under no obligation in so doing.

Polishing grain is packed in containers of the following sizes at no charge for packing:

POLISHING GRAIN.

Kegs	.....	(contents about 330 pounds).
Half Kegs	.....	(contents about 160 pounds).
Bags	.....	100 pounds.
Bags	.....	50 pounds.
Bags	.....	25 pounds.
Bags	.....	10 pounds.
Lithographed Cans	.....	5 pounds.
Lithographed Cans	.....	1 pound.

CARBORUNDUM

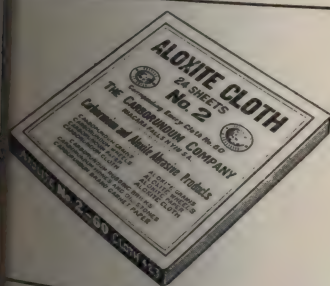


ALOXITE CLOTH IN ECONOMY ROLLS

ALOXITE CLOTH, which is rapidly succeeding the old time emery cloth for general machine shop work, is put up in economy rolls as well as in reams, sheets and ordinary rolls. The cloth is cut in $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2 and $2\frac{1}{2}$ inch widths, snugly wound on spools. The operator simply cuts off a piece in any length or width he desires. The rolls are fifty yards long and are made in any desired grit.

PRICE LIST

WIDTH	GRITS							
	100 and finer	90 $\frac{1}{2}$	80 1	70 $1\frac{1}{2}$	60 2	46 $2\frac{1}{2}$	36 3	24 $3\frac{1}{2}$
$1\frac{1}{2}$ "	\$1.20	\$1.25	\$1.30	\$1.35	\$1.45	\$1.50	\$1.55	\$1.65
$\frac{3}{4}$ "	1.55	1.60	1.65	1.75	1.85	1.95	2.05	2.15
1"	1.85	1.90	2.00	2.15	2.25	2.35	2.50	2.65
$1\frac{1}{2}$ "	2.50	2.60	2.75	2.90	3.05	3.25	3.45	3.70
2"	3.10	3.25	3.40	3.65	3.85	4.15	4.45	4.75
$2\frac{1}{2}$ "	3.75	3.90	4.15	4.40	4.70	5.00	5.40	5.80

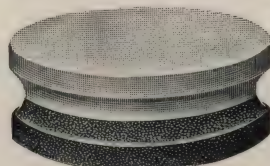


ALOXITE CLOTH

Aloxite is one of the ideal abrasive materials for metal work, and when coated on cloth it is far superior to emery for general machine shop work. Aloxite is exceedingly hard and extremely tough, and it not only does better but faster work than emery.

* Grit Numbers	50-yard Rolls—Price per Roll			
	Sheet 9x11 Price Per Ream	Width 9 inches	Width 18 inches	Width 27 inches
Powder F F	\$30.00	\$11.65	\$23.05	\$32.15
Powder F	30.00	11.65	23.05	32.15
3/0-180	30.00	11.65	23.05	32.15
2/0-150	30.00	11.65	23.05	32.15
0 -120	30.00	11.65	23.05	32.15
100-100	30.00	11.65	23.05	32.15
$\frac{1}{2}$ -90	30.00	11.65	23.05	32.15
1 -80	31.20	12.25	24.25	33.85
$1\frac{1}{2}$ -70	32.75	13.05	25.85	36.10
2 -60	34.30	14.00	27.75	38.80
$2\frac{1}{2}$ -46	36.50	14.95	29.65	41.50
3 -36	39.40	16.15	32.05	44.90
$3\frac{1}{2}$ -24	42.50	17.50	34.65	48.60
	46.00	18.95	37.60	52.80

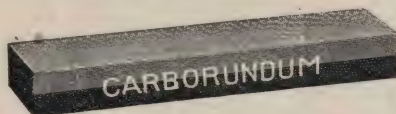
CARBORUNDUM



CARBORUNDUM COMBINATION KNIFE STONES

The CARBORUNDUM COMBINATION KNIFE STONES are specially designed to sharpen planer knives, paper cutter knives, and cloth-cutting knives without taking the blades from the machine. The groove protects the fingers from the knife edge. The stones have two sides, coarse grit and fine grit. The coarse grit brings the blade to an edge, the fine side gives the smooth finish to the edge. These stones are especially recommended to printers for their paper cutter knives.

No. 289, Size 4 inches diameter, $1\frac{1}{2}$ inches thick, per stone \$2.00
No. 332, Size $3\frac{1}{2}$ inches square, $1\frac{1}{2}$ inches thick, per stone \$2.00

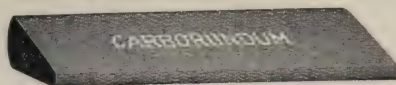


CARBORUNDUM COMBINATION BENCH STONES

The CARBORUNDUM COMBINATION STONES are made with one side coarse and one side very fine grit. The coarse side can be used for bringing the dull tools to an edge; the fine side to give the required keen finished edge. Made in five sizes.

	Per Stone		Per Stone
No. 108— 8x2 x1 in.	\$1.75	No. 112— 4x1 $\frac{3}{4}$ x 5 $\frac{1}{8}$ in.	
No. 109— 6x2 x1 in.	1.25	No. 328— 8x3 x1 in.	
No. 110— 7x2 x1 in.	1.50	No. 329— 9x3 x1 $\frac{1}{2}$ in.	
No. 111— 5x2 x $\frac{3}{4}$ in.	1.00	No. 333— 12x2 $\frac{1}{2}$ x1 in.	

These stones are also made in Aloxite; same sizes and prices.



CARBORUNDUM SLIP STONES

Made in five sizes and three different grits of each size. These slip stones cut rapidly and retain their shape. They are great little stones for touching up fine carving tools, chisels, etc.

	Per Stone		Per Stone
No. 174— 6 x2 $\frac{1}{4}$ x $\frac{3}{4}$ — $\frac{3}{8}$ in., fine	\$1.15	No. 182— 4 $\frac{1}{2}$ x2 $\frac{1}{8}$ x $\frac{5}{8}$ — $\frac{5}{16}$ in., coarse	
No. 175— 6 x2 $\frac{1}{4}$ x $\frac{3}{4}$ — $\frac{3}{8}$ in., medium	1.15	No. 183— 4 $\frac{1}{2}$ x1 $\frac{3}{4}$ x $\frac{1}{2}$ — $\frac{1}{8}$ in., fine	
No. 176— 6 x2 $\frac{1}{4}$ x $\frac{3}{4}$ — $\frac{3}{8}$ in., coarse	1.15	No. 184— 4 $\frac{1}{2}$ x1 $\frac{3}{4}$ x $\frac{1}{2}$ — $\frac{1}{8}$ in., medium	
No. 177— 4 $\frac{1}{2}$ x1 $\frac{3}{4}$ x $\frac{1}{4}$ — $\frac{1}{8}$ in., fine	.65	No. 185— 4 $\frac{1}{2}$ x1 $\frac{3}{4}$ x $\frac{1}{2}$ — $\frac{3}{16}$ in., coarse	
No. 178— 4 $\frac{1}{2}$ x1 $\frac{3}{4}$ x $\frac{1}{4}$ — $\frac{1}{8}$ in., medium	.65	No. 186— 4 x1 x $\frac{1}{8}$ — $\frac{3}{16}$ in., fine	
No. 179— 4 $\frac{1}{2}$ x1 $\frac{3}{4}$ x $\frac{1}{4}$ — $\frac{1}{8}$ in., coarse	.65	No. 187— 4 x1 x $\frac{1}{8}$ — $\frac{3}{16}$ in., medium	
No. 180— 4 $\frac{1}{2}$ x2 $\frac{1}{8}$ x $\frac{5}{8}$ — $\frac{1}{8}$ in., fine	.90	No. 189— 4 x1 x $\frac{1}{8}$ — $\frac{3}{16}$ in., coarse	
No. 181— 4 $\frac{1}{2}$ x2 $\frac{1}{8}$ x $\frac{5}{8}$ — $\frac{1}{8}$ in., medium	.90		

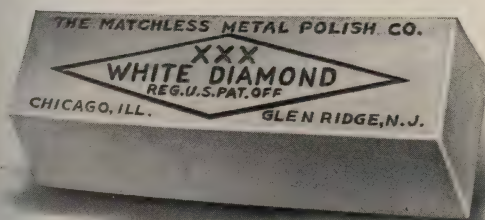
These stones are also made in Aloxite; same sizes and prices.

POLISHING COMPOSITION



This is a HIGH GRADE TRIPOLI COMPOSITION and successfully meets the demand for a fast-cutting, without scratch, TRIPOLI COMPOSITION. Its use will materially save buffs and the time of the buffer and increase your production.

We manufacture a number of types of TRIPOLI COMPOSITIONS, each designed for certain classes of work. The principal compounds are the X67, X22 and X R. These are all light in weight—an important fact when it is remembered that TRIPOLI COMPOSITIONS are sold by weight only. Pure TRIPOLI is very light



XXX "WHITE DIAMOND" COMPOSITION

Another product of the MATCHLESS METAL POLISH COMPANY which has been on the market for many years. *It is the original "White Diamond" Compound* and is a standard Composition for finishing and coloring Brass, Copper, Nickel and Nickel Silver. It is equally effective on solid metal or electroplate.

Packed in barrels of 450lbs.

Packed in half barrels of 250 lbs.

Broken lots—any quantity.

Bars measure $1\frac{3}{4}$ " x $2\frac{3}{4}$ " x 7".

Bars weigh $1\frac{3}{4}$ lbs each.

POLISHING COMPOSITION



We have four grades of LIME FINISH, viz:

The number 4 A for general all-around work Brass, Copper, Nickel and Nickel Silver either solid metal or electroplate. The number 34 is a greasy Lime Finish intended for heavy work as stove work and for coloring wheels running high speed. This grade of Finish is used for cutting down heavy deposits of Nickel as well as for lightly coloring it. The No. 17 is of a medium grade nature—between the 4 A and No. 34. The No. 17 is more greasy than the No. 34.

All grades will leave the work clean and with a very high lustre.

Put up in hermetically sealed round cans guaranteed not to slack while in original package. A key is furnished with each can for the purpose of opening the container. Directions for opening cans are printed on package labels.

Barrels of 450 lbs.

Half barrels of 250 lbs.

Broken lots—any quantity.

Size of round cans 3" x 3" x 5½"

Weight per can 2½ lbs.

MATCHLESS GREASE STICK

Round bars measure 2⅞" Dia. x 5⅞" long.

Round bars weight 14 ounces.

A BUFFING GREASE for lubricating the face of all classes of Polishing-Wheels: Emery, Carborundum, Leather, Felt, Canvas or Wood Wheels.

It is superior and more economical than Emery Paste or Emery Cake, Tripoli Composition or Tallow for the purpose.

This Composition is made from pure, hard, saponifiable greases, so constructed that it possesses a greater resistance to friction than Emery Compositions, Tripoli Composition or Tallow, thereby saving wear on the Polishing Wheel.



POLISHING WHEELS



ADVANCE SHEEPSKIN POLISHING WHEELS.

*Sewed and Cemented, Solid Cemented, Hand
Sewed and Loose Sheepskin Discs.*

FULL DIAMETER GUARANTEED.

ADVANCE SHEEPSKIN WHEELS are made from carefully selected hides. Every hide is thoroughly inspected and skins showing the slightest imperfection, unevenness or hard spots are rejected. The hides are sanded off on the flesh side before being cut into discs and brought to a uniform thickness. The sanding process removes all loose material from the flesh side of the hide and permits the perfect adherence of the cement used.

SOLID CEMENTED SHEEPSKIN WHEELS are made by cementing the sides together to the desired thickness, making a wheel especially adapted to polishing uneven surfaces giving a very fine finish.

HAND-SEWED SHEEPSKIN WHEELS are made of full discs sewed together to the desired thickness with as many rows of hand sewing as requested. This makes a very pliable wheel for certain kinds of polishing, and is oftentimes used for buffing.

SEWED AND CEMENTED SHEEPSKIN WHEEL makes the more solid wheel as it is composed of whole layers of sheepskin sewed with very close tight and short stitched linen thread like a buff. These sections are then cemented together until the required thickness is obtained. The SEWED AND CEMENTED SHEEPSKIN WHEEL is the polishing wheel most generally used.

LOOSE SHEEPSKIN WHEELS ARE OF FULL DISCS sewed once around the hole and are used for very fine finishing or buffing.

"All advance sheepskin wheels are made of full discs."

POLISHING WHEELS



ADVANCE CANVAS POLISHING WHEELS.

FULL DIAMETER GUARANTEED.

ADVANCE CANVAS POLISHING WHEELS are known all over the United States for their perfect balance and performance. They are made of all white layers and of a special white woven cotton canvas measuring in thickness from $\frac{1}{8}$ inch to $\frac{1}{2}$ inch depending on the density of the wheel desired. These wheels can be furnished in ROCK HARD, HARD, MEDIUM, SOFT, VERY SOFT.

The cement used in the construction of ADVANCE CANVAS POLISHING WHEELS is of flexible nature which eliminates entirely the hard ridge which oftentimes appears on the face of the wheel while polishing. This cement wears down very evenly with the wheel itself. ADVANCE CANVAS POLISHING WHEELS are glue sized with a very high grade milk white glue. Glue sizing the face assists the glue which the polisher uses when he sets up his wheel to adhere more properly, preventing the emery from chipping off the face of the wheel. This wheel requires no extra trimming by the polisher.

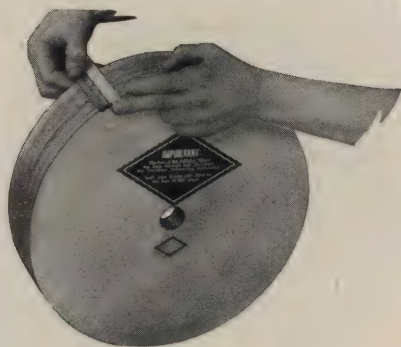
These wheels can be furnished from 1 inch to 7 feet in diameter and from $\frac{1}{4}$ inch to a 20 inch face.

ADVANCE HAND SEWED CANVAS POLISHING WHEELS.

FULL DIAMETER GUARANTEED.

ADVANCE HAND SEWED CANVAS WHEELS are made of a $\frac{1}{8}$ inch canvas stock, all full discs. The sewing generally used is one row of sewing around the arbor hole to strengthen this part of the wheel, then three rows of sewing approximately 1 inch apart. The stitches of the sewing is approximately $\frac{1}{2}$ inch long depending on the diameter of the wheel ordered. We are in a position to give as many rows of hand sewing as is desired.

POLISHING WHEELS



ADVANCE MUSLIN CLOTH POLISHING WHEELS.

This wheel is made by sewing a number of layers of Muslin Cloth to approximately $\frac{1}{4}$ inch thick sewed, from center to periphery with the sewing $\frac{1}{4}$ inch apart. These sections are then cemented together to the desired thickness of face, put under a pressure of approximately 1000 pounds until thoroughly dried. They are then bored with the size hole required and trimmed with a very smooth face. The face is then carefully sanded down to bring up the nap of the stock and glue sized with a very high grade milk white glue. Glue sizing the face assists the glue which the polisher uses when he sets up his wheel to adhere more properly preventing the emery from chipping off the face of the wheel. This wheel requires no extra trimming by the polisher.

ADVANCE MUSLIN CLOTH POLISHING WHEELS DO NOT SPREAD out at the face of the wheel, due to the fact, that in the manufacture of this product a very heavy closely woven canvas $\frac{1}{8}$ inch in thickness is placed on the sides of this wheel then covered with a No. 10 duck to add to its appearance. This extra heavy woven canvas disc reinforces the sides so as to prevent any spreading of the wheel. This wheel is especially suitable for shovel work, plows, agricultural tools and stoves. In the small sizes it is an excellent all around jobbing wheel for blacksmiths. It is the best constructed wheel and has better material in it than any wheel similar to it on the market.

SOLD BY THE POUND.

POLISHING WHEELS



ADVANCE BULLNECK POLISHING WHEELS.

FULL DIAMETER GUARANTEED

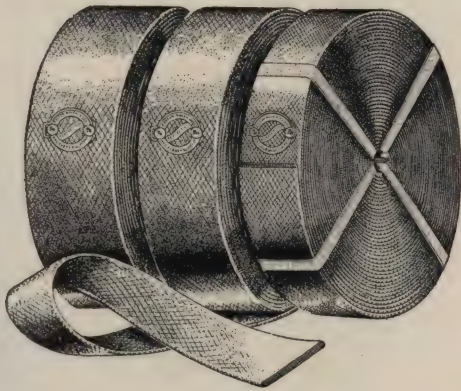
ADVANCE BULLNECK LEATHER POLISHING WHEELS are used principally the stove trade for greasing and coloring. They can be grooved or shaped to fit the work to be polished. They make an excellent wheel for obtaining a very high finish on flat work.

ADVANCE BULLNECK LEATHER POLISHING WHEELS do not contain scraps or pieces which fly out. The Bullneck Polishing Wheel made of scraps is a danger to the life of the workman in that they are bound to fly out most of the time and cause injury to the man operating the wheel. Genuine Bullneck Leather is used in the construction of all ADVANCED BULLNECK LEATHER POLISHING WHEELS.

ADVANCED BULLNECK LEATHER POLISHING WHEELS can be had in any diameter from 1 inch to 7 feet, any size face from 1 inch to 20 inches. They are perfectly machined so that the face of the wheel is the same thickness the entire circumference of the wheel. This assures perfect performance and will not wobble on the lathe, due to the fact, that the wheel itself is true from the hole assuring perfect balance.

SOLD BY THE POUND.

PERFECTION BELT



No speed
too high

No pulley
too small

(FRICTION SURFACE)

"THE MOST PLIABLE BELT MADE."

The Perfection Belt is constructed on different principles from ordinary rubber belting. It has several plies of fine, closely woven duck instead of a smaller number of plies of coarse duck; this gives greater flexibility, with *less stretch*.

The quality of the materials used in Perfection is the best obtainable. The duck is especially woven of cotton with a hard twist, and is of exceedingly high tensile strength. The friction is also of exceptional strength, and the plies are so firmly held together that the belt is able to successfully resist the strain caused by passing over the pulleys at a high rate of speed.

It runs smoothly and without vibration, and does not "air cushion" or slip. The friction surface of Perfection causes it to cling very closely to the pulley, making an almost perfect pulley contact. The belt, therefore, transmits more power than the same size leather belt.

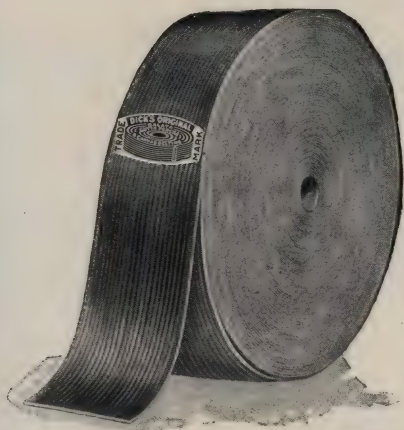
BELTING

REVISED RUBBER BELTING LIST. (PRICES PER FOOT)

Adopted by the Mechanical Rubber Goods Manufacturers' Division of The Rubber Association of America, Inc., May 21, 1918—Effective July 1, 1918.

Inch	2-ply	3-ply	4-ply	5-ply	6-ply	7-ply	8-ply	9-ply	10-ply	11-ply
1	\$.18	\$.20	\$.24	.....	.....	.....	.....	.....	.....	.....
1¼	.23	.26	.30	.....	.....	.....	.....	.....	.....	.....
1½	.27	.31	.36	\$.45	.....	.....	.....	.....	.....	.....
1¾	.32	.36	.42	.53	.....	.....	.....	.....	.....	.....
2	.34	.39	.46	.58	\$.69	.....	.....	.....	.....	.....
2½	.42	.48	.56	.70	.84	.....	.....	.....	.....	.....
3	.48	.55	.65	.81	.98	.....	.....	.....	.....	.....
3½	.57	.65	.76	.95	1.14	.....	.....	.....	.....	.....
4	.61	.70	.82	1.03	1.23	\$1.44	.....	.....	.....	.....
4½	.....	.78	.92	1.15	1.38	1.61	.....	.....	.....	.....
5	.....	.87	1.02	1.28	1.53	1.79	.....	.....	.....	.....
6	.....	1.04	1.22	1.53	1.83	2.14	\$2.44	\$2.75	\$3.06	\$3.36
7	.....	1.22	1.43	1.79	2.15	2.50	2.86	3.22	3.58	3.94
8	.....	1.31	1.54	1.93	2.31	2.70	3.08	3.47	3.86	4.24
9	.....	.....	1.73	2.16	2.60	3.03	3.46	3.89	4.32	4.76
10	.....	.....	1.92	2.40	2.88	3.36	3.84	4.32	4.80	5.28
11	.....	.....	2.11	2.64	3.17	3.69	4.22	4.75	5.28	5.81
12	.....	.....	2.30	2.88	3.45	4.03	4.60	5.18	5.76	6.33
13	.....	.....	2.50	3.13	3.75	4.38	5.00	5.63	6.26	6.88
14	.....	.....	2.69	3.36	4.04	4.71	5.38	6.05	6.72	7.40
15	.....	.....	2.88	3.60	4.32	5.04	5.76	6.48	7.20	7.92
16	.....	.....	3.08	3.86	4.62	5.40	6.16	6.94	7.72	8.48
18	.....	.....	3.46	4.32	5.20	6.06	6.92	7.78	8.64	9.52
20	.....	.....	3.84	4.80	5.76	6.72	7.68	8.64	9.60	10.56
22	.....	.....	4.22	5.28	6.34	7.38	8.44	9.50	10.56	11.62
24	.....	.....	4.60	5.76	6.90	8.06	9.20	10.36	11.52	12.66
26	.....	.....	.....	6.26	7.50	8.76	10.00	11.26	12.52	13.76
28	.....	.....	.....	6.72	8.08	9.42	10.76	12.10	13.44	14.80
30	.....	.....	.....	7.20	8.64	10.08	11.52	12.96	14.40	15.84
32	.....	.....	.....	7.72	9.24	10.80	12.32	13.88	15.44	16.96
34	.....	.....	.....	8.18	9.82	11.46	13.08	14.72	16.36	18.00
36	.....	.....	.....	8.64	10.40	12.12	13.84	15.56	17.28	19.04
38	.....	.....	.....	.....	10.96	12.78	14.60	16.42	18.24	20.08
40	.....	.....	.....	.....	11.52	13.44	15.36	17.28	19.20	21.12
42	.....	.....	.....	.....	12.10	14.10	16.12	18.14	20.16	22.18
44	.....	.....	.....	.....	12.68	14.76	16.88	19.00	21.12	23.24
46	.....	.....	.....	.....	13.24	15.44	17.64	19.86	22.08	24.28
48	.....	.....	.....	.....	13.80	16.12	18.40	20.72	23.04	25.32
50	.....	.....	.....	.....	14.40	16.82	19.20	21.62	24.04	26.42
52	.....	.....	.....	.....	15.00	17.52	20.00	22.52	25.04	27.52
54	.....	.....	.....	.....	15.58	18.18	20.76	23.36	25.96	28.56
56	.....	.....	.....	.....	16.16	18.84	21.52	24.20	26.88	29.60
58	.....	.....	.....	.....	16.72	19.50	22.28	25.06	27.84	30.64
60	.....	.....	.....	.....	17.28	20.16	23.04	25.92	28.80	31.68

BELTING



DICK'S, THE ORIGINAL BALATA BELT.

This Belt was invented and patented by the late founders of the present firm in the year 1885. Balata, which is a vegetable gum of a somewhat similar nature to Rubber and Guttapercha, is principally found in Venezuela, Guiana and the West Indies, and had already been used by the patentees of the Dick Belt for other purposes. At that time, however, it was neither well known nor generally used, and its present universal employment is the direct outcome of Messrs. R & J. Dick's research.

After the somewhat natural disinclination of engineers to forsake leather had been overcome, the success of Dick's Belting was assured, and it has since been manufactured in increasingly large quantities, in spite of the many imitations that have followed in its path.

For very many years now it has been adjudged the *Premier Driving Belt* of the world, and it is considered by consumers the standard whereby imitations are judged.

Its use as a *Conveying and Elevating Belt* is almost universal, especially where the nature of the material carried is exceptionally severe.

BELTING

STANDARD AND UNIFORM LIST
DICK'S ORIGINAL PATENT BALATA BELTING.

THE "DICKBELT."

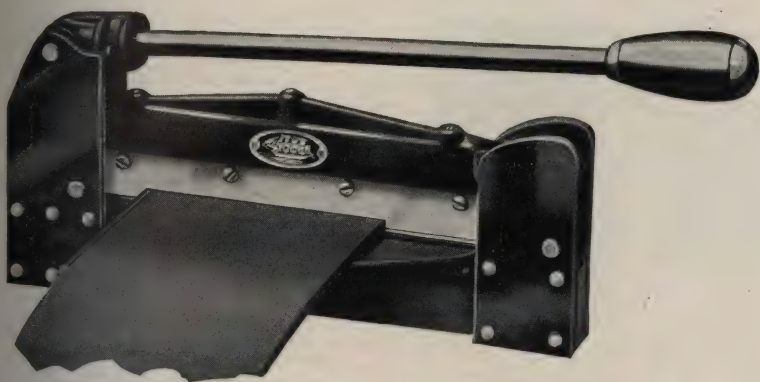
ADOPTED MARCH 15, 1911.

Width. In.	3-ply	4-ply	5-ply	6-ply	7-ply	8-ply
1	\$.18	\$.24	\$			
1 $\frac{1}{4}$	.23	.30	.....			
1 $\frac{1}{2}$	.27	.36	.....			
1 $\frac{3}{4}$	.32	.42	.53			
2	.36	.48	.60			
2 $\frac{1}{4}$	.41	.54	.68			
2 $\frac{1}{2}$	.45	.60	.75	\$	\$	\$
2 $\frac{3}{4}$	.50	.66	.83	.....	.....	.....
3	.54	.72	.90	.....	.....	.....
3 $\frac{1}{4}$	.59	.78	.98	.....	.....	.....
3 $\frac{1}{2}$	.63	.84	1.05	.....	.....	.....
3 $\frac{3}{4}$	.68	.90	1.13	.....	.....	.....
4	.72	.96	1.20	1.44	.....	.....
4 $\frac{1}{4}$	.77	1.02	1.28	1.53	.....	.....
4 $\frac{1}{2}$	.81	1.08	1.35	1.62	.....	.....
5	.90	1.20	1.50	1.80	.....	.....
5 $\frac{1}{2}$	.99	1.32	1.65	1.98	.....	.....
6	1.08	1.44	1.80	2.16	.....	.....
6 $\frac{1}{2}$	1.17	1.56	1.95	2.34	.....	.....
7	1.26	1.68	2.10	2.52	2.94	3.36
7 $\frac{1}{2}$	1.35	1.80	2.25	2.70	3.15	3.60
8	1.44	1.92	2.40	2.88	3.36	3.84
9	1.62	2.16	2.70	3.24	3.78	4.32
10	1.80	2.40	3.00	3.60	4.20	4.80
11	1.98	2.64	3.30	3.96	4.62	5.28
12	2.16	2.88	3.60	4.32	5.04	5.76
13	2.34	3.12	3.90	4.68	5.46	6.24
14	2.52	3.36	4.20	5.04	5.88	6.72
15	2.70	3.60	4.50	5.40	6.30	7.20
16	2.88	3.84	4.80	5.76	6.72	7.68
17	3.06	4.08	5.10	6.12	7.14	8.16
18	3.24	4.32	5.40	6.48	7.56	8.64
19	3.42	4.56	5.70	6.84	7.98	9.12
20	3.60	4.80	6.00	7.20	8.40	9.60
21	3.78	5.04	6.30	7.56	8.82	10.08
22	3.96	5.28	6.60	7.92	9.24	10.56
23	4.14	5.52	6.90	8.28	9.66	11.04
24	4.32	5.76	7.20	8.64	10.08	11.52

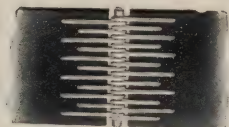
All other sizes
in proportion.

Discounts on Application.

THE CLIPPER BELT CUTTER



The Clipper Belt Cutter makes the operation of cutting and squaring belts a pleasure. It will cut and square all makes of belts—even of the toughest material—with a slight pressure on the handle. Cuts and squares any make of belt up to six inches in width in one operation. Workmanship and material fully guaranteed. A properly squared belt will not cause any undue strain on any part of your belting fiber or lacing. Weight 9 lbs. Make your beltman happy and save valuable time by ordering one now.



Lacing is more effective when belt is squared with Clipper Belt Cutters.

The Clipper Belt Cutter Cuts the Belt absolutely square. Capacity 6 inches in width.

Write us for details.

Price, \$12.00.

BELT LACING

THE "CLIPPER" JOINT.



A smooth, flexible, durable joint that will not tear or pull out. Easily and rapidly applied.

Suitable for every kind of belting—leather, rubber, canvas, fabric, etc.,—not exceeding $\frac{3}{8}$ inch in thickness.

"CLIPPER" BELT LACERS.

Sold on 30 days' approval and perpetually guaranteed by the manufacturers, so long as genuine "CLIPPER" Belt Hooks are exclusively used in them.

JUNIOR, No. 1.



For belts up to 2 inches in width. Especially adapted for use in textile establishments, watch and clock factories, garages, etc. Weighs 3 pounds.

Price No. 1, Ready for use.....each, \$10.00
Price No. 1 Hooksper box, .80

Only No. 1 "CLIPPER" Belt Hooks can be used in "JUNIOR CLIPPER" Belt Lacer No. 1.

"CLIPPER" BELT LACERS. STANDARD, No. 3.



Particularly adapted for belts up to 6 inches wide. Will also lace wider belts satisfactorily. Can be carried to the belt—weighs only 24 pounds.
Price No. 3, Ready for use.....each, \$20.00
Price No. 3, Including one box, each, \$21.80
Nos. 3, 4 and 5 Carded Hooks,each, .80

BABY, No. 0.



For use in any ordinary rooms, garages, and small shops. Laces belts up to 4 inches wide. Quickly proves its usefulness. Weighs 3 pounds.

Price No. 0, Ready for use.....each, \$5.00
Price No. 0. Including one box, each, \$5.80
No. 3 or No. 4 Carded Hooks.....each, .80

"CLIPPER" BELT LACING

"CLIPPER" BELT HOOKS



Made from special steel wire tempered to combine great tensile strength with ability to withstand fatigue.

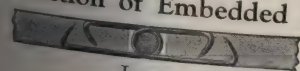
Carded on paper for convenience in handling. The cards can be cut, without waste, to suit the width required for any belt. Each card holds 37 hooks.

Packed in boxes containing 27 cards (one size) and 14 twisted rawhide pins—sufficient for lacing both ends of belt, total width 180 inches.

Selection of size is determined by the thickness of the belt.

Price No. 2, for Thin Belts Over Small Sized Pulley.....	per box	\$.80
Price No. 3, for Thin Belts Over Medium Sized Pulley.....	per box	.85
Price No. 4, for Belts Not Over $\frac{1}{4}$ inch Thick.....	per box	.85
Price No. 5, for Belts Not Over $\frac{1}{8}$ inch Thick.....	per box	1.00
Price No. 6, for Belts Not Over $\frac{3}{8}$ inch Thick.....	per box	1.35
10% discount on single purchases of 25 boxes or more.		

Cross Section of Embedded Hook



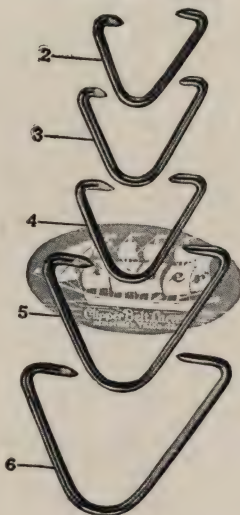
JOINED



DISJOINED

The secret of the success of "CLIPPER" Hooks lies in their design and the manner in which one hook is placed behind the other as shown above. While a powerful grip is thus secured, no belting fibers are cut or injured. The belt is not weakened at the joint.

"CLIPPER" BELT HOOKS ACTUAL SIZE



These sizes adapted for use in standard No. 3, and Baby, No. 0, CLIPPER Belt Lacers. No. 1 Hooks (for use only in "JUNIOR CLIPPER" Belt Lacer No. 1) not shown.

RAWHIDE AND "FIBRO" PINS



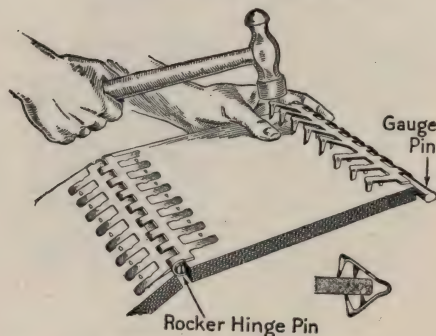
Twisted Rawhide pins are for general requirements. "FIBRO" (water proof) pins are for use wherever there is moisture.

Packed in standard bundles containing 24 pins, 12 inches long.

Size	Diameter	For	Price Per Bundle "Fibro" Rawhide
No. 13, $\frac{1}{16}$ inch, very thin belts, No. 2 and 3 Hooks.			\$0.35 \$0.70
No. 12, $\frac{1}{8}$ inch, No. 4 Hooks.			.35 .70
No. 11, $\frac{3}{16}$ inch, No. 5 Hooks.			.35 .70
No. 10, $\frac{1}{4}$ inch, No. 5 Hooks.			.40 .80
No. 9, $\frac{5}{16}$ inch, No. 6 Hooks.			.45 .90
No. 8, $\frac{3}{8}$ inch, No. 6 Hooks.			.50 1.00
No. 7, $\frac{1}{2}$ inch, heavy belts.			.60 1.20
No. 5, $\frac{3}{4}$ inch, heavy belts.			.70 1.60
Assorted Sizes, Nos. 8-13.			.40 .75

BELT LACING

ALLIGATOR

REGISTERED IN U.S. PATENT OFFICE
STEEL BELT LACING

For use on leather, rubber, bal
stitched canvas or solid woven belt
giving a smooth, flexible joint excel
for general service, high speed and he
duty.

Efficient separable hinge lacing of
treme strength. Protects ends of bal
belts. Operates successfully with
idler or on serpentine drives.

No tool required but a hammer.
Packed in boxes complete with
and hinge pins.



REGISTERED TRADE MARK

Lacing No.	Thickness of Belt Inches	Description	Will Join in Width Inches	Length Section Inches
00	Up to $\frac{1}{16}$	Printers' Tapes and Other Tape Belts	72	6
1	$\frac{1}{16}$ to $\frac{3}{32}$	Tape Belts	42	6
15	$\frac{1}{8}$ to $\frac{3}{16}$	Light Narrow Single Leather or Fabric	64	8
*S15	$\frac{1}{8}$ to $\frac{3}{16}$	Light Narrow Single Leather or Fabric	12	6
20	$\frac{3}{16}$ to $\frac{1}{4}$	Single Leather, 3-4-ply Fabric, etc.	60	12
F25	$\frac{3}{16}$ to $\frac{1}{4}$	Single Leather and Fabric Belts	48	8
G25	$\frac{3}{16}$ to $\frac{1}{4}$	Single Leather and Fabric Belts	96	12
*S25	$\frac{3}{16}$ to $\frac{1}{4}$	Single Leather and Fabric Belts	12	6
L27	$\frac{1}{4}$ to $\frac{5}{16}$	Leather on 4-ply Fabric Belts	96	12
*S27	$\frac{1}{4}$ to $\frac{5}{16}$	Leather or 4-ply Fabric Belts	12	6
M35	$\frac{5}{16}$ to $\frac{3}{8}$	(Double Leather, 5-ply Rubber)	32	8
N35	$\frac{5}{16}$ to $\frac{3}{8}$	Cotton or Balata Belts	48	12
*S35	$\frac{5}{16}$ to $\frac{3}{8}$	Cotton or Balata Belts	12	6
U45	$\frac{3}{8}$ to $\frac{1}{2}$	Heavy Double Leather and 5-6-ply Belts	48	12
W55	$\frac{3}{8}$ to $\frac{1}{2}$	6-7-ply Rubber, Cotton or Balata Belt	48	12
X65	$\frac{7}{16}$ to $\frac{1}{2}$	7 and 8-ply Rubber, Cotton or Balata	48	12
75	$\frac{1}{2}$ to $\frac{5}{8}$	For Heavy Belts	48	12

Sizes No. 00, 1 and 15 are packed only with Rawhide pins. Sizes No. 25, 27, 35 and 45 are packed regularly with "Rocker" pins but can be with Rawhide pins if so specified. Sizes No. 55, 65 and 75 are packed with the sectional steel Rocker hinge pins.

*These Handy "S" packages are supplied to the dealer in cartons, each containing a single size—10 of the small packages to the carton.

SECTIONAL STEEL



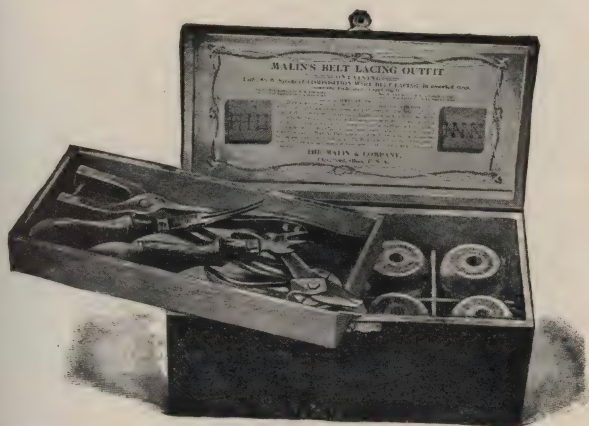
ROCKER PINS

EXTRA HINGE PINS THAT CAN BE CUT TO SUIT.

Size Pin Inches	Description	For Lacing No.	Length Lacing Inches
No. 00	Rawhide Pin only	00	6
1	Rawhide Pin only	1	6
$\frac{3}{32}$	Rawhide Pin only	15	8
$\frac{1}{8}$	Rawhide or Steel Rocker Pin	20 and 25	12
$\frac{3}{16}$	Rawhide or Steel Rocker Pin	27	12
$\frac{1}{4}$	Rawhide or Steel Rocker Pin	35	12
$\frac{5}{16}$	Rawhide or Steel Rocker Pin	45	12
---	Steel Rocker Pins only	55 and 65	12
---	Steel Rocker Pins only	75	12

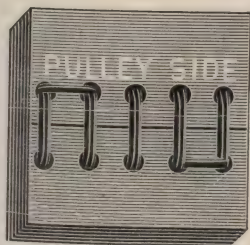
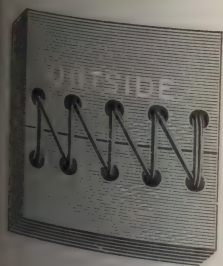
Above list prices are subject to discount.

WIRE BELT LACING



Complete outfit—8 Spools of Lacing and Complete Set of Tools.

DAMASCUS WIRE BELT LACING.



THE MALIN & CO.

CLEVELAND O. U.S.A.

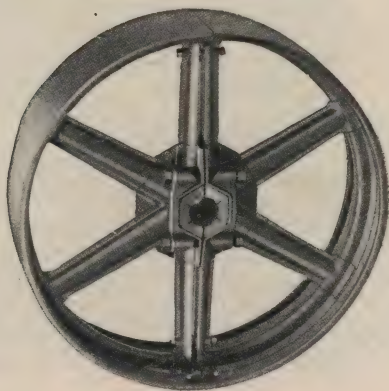


- No. 00—For Belts $\frac{1}{2}$ to 1 inch wide.
- No. 0—For Belts 1 to 2 inches wide.
- No. 1—For Belts 2 to 6 inches wide.
- No. 2—For Belts 6 to 20 inches wide.
- No. 3—For Belts 20 to 40 inches wide.

All Sizes, List, \$2.00 per 100 Feet.

50 feet in each coil and each coil in a box, with directions for use.

THE BARRY PULLEY



THE BARRY PATENT STEEL SPLIT PULLEY.

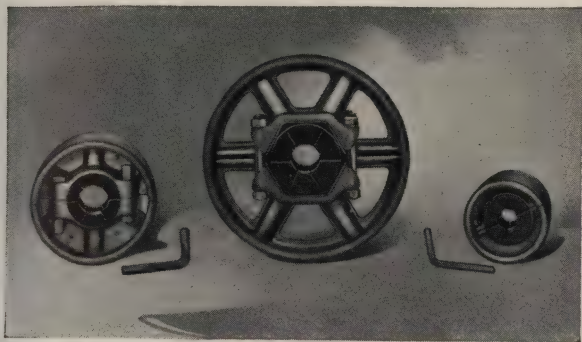
THE BARRY STEEL SPLIT PULLEY represents the most considerable forward step yet taken in the design and manufacture of a Steel Split Pulley.

Scientific design and selection and distribution of material, give the BARRY PULLEY greater strength and durability with less weight, than is found in any other steel pulley.

THE BARRY PULLEY is ELECTRICALLY SPOT WELDED by the latest and most improved methods and appliances. Welding is the strongest possible means of joining metals, presenting many advantages over the old style riveting. There are no rivets in a BARRY PULLEY to work loose or shear under strain.

The arms are of tubular oval construction, and consequently possess the greatest obtainable rigidity. The tubular reinforcement inside the rim prevents "localization of forces" at the juncture of the arms and rim, and thereby preserves the exact shape of the pulley under heavy loads. This ensures true running under all conditions. All bolts are carefully machined.

THE BARRY PULLEY (CONT.)



SMALL BARRY STEEL SPLIT PULLEYS.
PATENTED.

In the center of the above cut is shown the improved 10 in. pulley which has the same rim and hub construction as pulleys of larger diameter, but differs from these pulleys in that the rim reinforcement, arms, and hub, are in one piece, and that it is split through the arms. The same design is used in the construction of 8, 9, and 11 in. pulleys.

On the extreme left is shown the 6 in. BARRY PULLEY, the design of which differs greatly from other small size split pulleys. The wrench hole is much smaller, thus rendering accidents to operatives practically impossible. The BARRY STEEL SPLIT PULLEY conforms in every way to small pulley requirements regarding space and installation. Our bolt and nut construction makes this pulley extremely simple to handle, and also renders it impossible for the bolt to fall or work out of position. A suitable wrench is furnished with each pulley.

Pulleys smaller than 6 ins. diameter are supplied as shown by cut at the extreme right. This pulley is of solid web construction between hub and rim, and is the very strongest pulley made in this size. The clamping device is extremely simple, and as in the case of the 6 in. pulley described above, this pulley is very easy to install. A suitable wrench is also supplied with this size pulley.

In these pulleys we have unquestionably overcome all the drawbacks usually met with in the use of small diameter pulleys. Strength of the BARRY design is here together with lightness, durability, reliability, and extreme ease of installation, and safety.

THE BARRY STEEL SPLIT PULLEYS

(Patented March, 1916)

PRICE LIST—SUBJECT TO DISCOUNT

All Dimensions Given in Inches. One Complete Bushing Included in Price

Diam.	Face	List Price	Max. Shaft	Lgth. of Bushing	Bush-ing Mark	Diam.	Face	List Price	Max. Shaft	Lgth. of Bushing	Bush-ing Mark
3	2	\$ 2.28	1 $\frac{7}{16}$	2 $\frac{1}{2}$	A	12	2	\$ 3.90	3	3 $\frac{5}{8}$	H
	3	2.40	1 $\frac{7}{16}$	2 $\frac{1}{2}$	A		3	4.20	3	3 $\frac{5}{8}$	H
	4	2.52	1 $\frac{7}{16}$	2 $\frac{1}{2}$	A		4	4.63	3	3 $\frac{5}{8}$	H
	5	2.68	1 $\frac{7}{16}$	2 $\frac{1}{2}$	A		5	4.80	3	3 $\frac{5}{8}$	H
	6	3.00	1 $\frac{7}{16}$	2 $\frac{1}{2}$	A		6	5.33	3	3 $\frac{5}{8}$	H
4	2	2.40	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		8	5.78	3	4 $\frac{1}{2}$	WH
	3	2.52	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		10	6.45	3	4 $\frac{1}{2}$	WH
	4	2.64	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		12	7.65	3	4 $\frac{1}{2}$	WH
	6	3.10	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B	13	2	4.05	3	3 $\frac{5}{8}$	H
5	2	2.52	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		3	4.35	3	3 $\frac{5}{8}$	H
	3	2.64	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		4	4.80	3	3 $\frac{5}{8}$	H
	4	2.75	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		5	5.20	3	3 $\frac{5}{8}$	H
	5	2.87	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		6	5.62	3	3 $\frac{5}{8}$	H
	6	3.25	2 $\frac{3}{16}$	2 $\frac{1}{2}$	B		8	6.43	3	4 $\frac{1}{2}$	WH
6	2	3.15	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C	14	10	7.20	3	4 $\frac{1}{2}$	WH
	3	3.30	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C		12	8.40	3	4 $\frac{1}{2}$	WH
	4	3.45	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C	15	2	4.20	3	3 $\frac{5}{8}$	H
	5	3.75	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C		3	4.50	3	3 $\frac{5}{8}$	H
	6	4.05	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C		4	5.20	3	3 $\frac{5}{8}$	H
7	2	3.22	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C		5	5.65	3	3 $\frac{5}{8}$	H
	3	3.38	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C		6	6.15	3	3 $\frac{5}{8}$	H
	4	3.60	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C		8	7.05	3	4 $\frac{1}{2}$	WH
	6	4.20	2 $\frac{7}{16}$	2 $\frac{1}{2}$	C		10	8.03	3	4 $\frac{1}{2}$	WH
8	2	3.30	3	3 $\frac{5}{8}$	H		12	9.00	3	4 $\frac{1}{2}$	WH
	3	3.45	3	3 $\frac{5}{8}$	H	16	2	4.50	3	3 $\frac{5}{8}$	H
	4	3.75	3	3 $\frac{5}{8}$	H		3	4.95	3	3 $\frac{5}{8}$	H
	5	4.05	3	3 $\frac{5}{8}$	H		4	5.75	3	3 $\frac{5}{8}$	H
	6	4.35	3	3 $\frac{5}{8}$	H		5	6.10	3	3 $\frac{5}{8}$	H
	8	4.95	3	4 $\frac{1}{2}$	WH		6	6.90	3	3 $\frac{5}{8}$	H
	10	5.60	3	4 $\frac{1}{2}$	WH		8	8.25	3	4 $\frac{1}{2}$	WH
9	12	6.25	3	4 $\frac{1}{2}$	WH		10	9.45	3	4 $\frac{1}{2}$	WH
	2	3.38	3	3 $\frac{5}{8}$	H		12	10.50	3	4 $\frac{1}{2}$	WH
	3	3.60	3	3 $\frac{5}{8}$	H	17	3	5.25	3	3 $\frac{5}{8}$	H
	4	3.90	3	3 $\frac{5}{8}$	H		4	6.00	3	3 $\frac{5}{8}$	H
	5	4.20	3	3 $\frac{5}{8}$	H		5	6.50	3	3 $\frac{5}{8}$	H
	6	4.50	3	3 $\frac{5}{8}$	H		6	7.28	3	3 $\frac{5}{8}$	H
	8	5.10	3	4 $\frac{1}{2}$	WH		8	8.78	3	4 $\frac{1}{2}$	WH
10	10	5.75	3	4 $\frac{1}{2}$	WH		10	10.05	3	4 $\frac{1}{2}$	WH
	12	6.35	3	4 $\frac{1}{2}$	WH		12	11.25	3	4 $\frac{1}{2}$	WH
	2	3.45	3	3 $\frac{5}{8}$	H	18	3	5.55	3	3 $\frac{5}{8}$	H
	3	3.75	3	3 $\frac{5}{8}$	H		4	6.38	3	3 $\frac{5}{8}$	H
	4	4.05	3	3 $\frac{5}{8}$	H		5	7.00	3	3 $\frac{5}{8}$	H
	5	4.35	3	3 $\frac{5}{8}$	H		6	7.65	3	3 $\frac{5}{8}$	H
	6	4.65	3	3 $\frac{5}{8}$	H		8	9.30	3	4 $\frac{1}{2}$	WH
11	8	5.25	3	4 $\frac{1}{2}$	WH		10	10.65	3	4 $\frac{1}{2}$	WH
	10	5.90	3	4 $\frac{1}{2}$	WH		12	12.00	3	4 $\frac{1}{2}$	WH
	12	6.45	3	4 $\frac{1}{2}$	WH	19	3	5.80	3	3 $\frac{5}{8}$	H
	2	3.65	3	3 $\frac{5}{8}$	H		4	6.75	3	3 $\frac{5}{8}$	H
	3	3.90	3	3 $\frac{5}{8}$	H		5	7.50	3	3 $\frac{5}{8}$	H
	4	4.20	3	3 $\frac{5}{8}$	H		6	8.25	3	3 $\frac{5}{8}$	H
	5	4.50	3	3 $\frac{5}{8}$	H		8	10.13	3	4 $\frac{1}{2}$	WH
	6	4.80	3	3 $\frac{5}{8}$	H		10	11.25	3	4 $\frac{1}{2}$	WH
12	8	5.40	3	4 $\frac{1}{2}$	WH		12	12.90	3	4 $\frac{1}{2}$	WH
	10	6.00	3	4 $\frac{1}{2}$	WH						
	12	6.90	3	4 $\frac{1}{2}$	WH						

THE BARRY STEEL SPLIT PULLEYS

(Patented March, 1916)

PRICE LIST—SUBJECT TO DISCOUNT

All Dimensions Given in Inches. One Complete Bushing Included in Price.

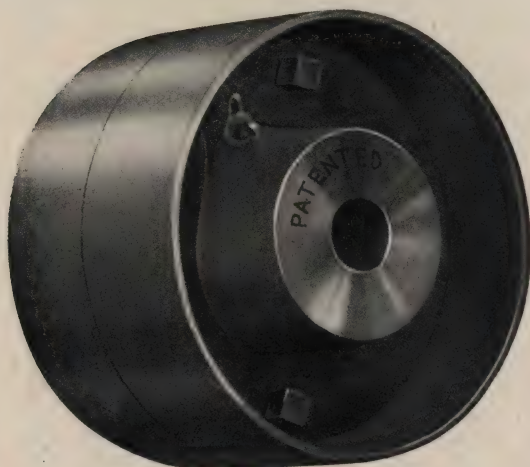
Diam.	Face	List Price	Max. Shaft	Lgth. of Bushing	Bush-ing Mark
20	3	\$6.00	3	*3 5/8	H
	4	7.50	3	*3 5/8	H
	5	8.10	3	*3 5/8	H
	6	9.00	3	*3 5/8	H
	8	10.73	3	5 5/8	WK
	10	12.00	3	5 5/8	WK
	12	14.25	3	5 5/8	WK
21	3	6.25	3	*3 5/8	H
	4	8.00	3	*3 5/8	H
	5	8.90	3	*3 5/8	H
	6	9.60	3	*3 5/8	H
	8	11.25	3	5 5/8	WK
	10	12.98	3	5 5/8	WK
	12	15.60	3	5 5/8	WK
22	3	6.50	3	*3 5/8	H
	4	8.55	3	*3 5/8	H
	5	9.50	3	*3 5/8	H
	6	10.28	3	*3 5/8	H
	8	12.00	3	5 5/8	WK
	10	14.10	3	5 5/8	WK
	12	16.80	3	5 5/8	WK
23	3	7.00	3	*3 5/8	H
	4	8.70	3	*3 5/8	H
	5	9.90	3	*3 5/8	H
	6	10.58	3	*3 5/8	H
	8	12.60	3	5 5/8	WK
	10	14.75	3	5 5/8	WK
	12	18.00	3	5 5/8	WK
24	3	7.50	3	*3 5/8	H
	4	8.90	3	*3 5/8	H
	5	10.00	3	*3 5/8	H
	6	10.95	3	*3 5/8	H
	8	13.20	3	5 5/8	WK
	10	15.68	3	5 5/8	WK
	12	19.05	3	5 5/8	WK
26	4	9.55	3	*3 5/8	H
	6	11.95	3	*3 5/8	H
	8	14.40	3	5 5/8	WK
	10	17.10	3	5 5/8	WK
	12	21.30	3	5 5/8	WK
28	4	10.80	3	*3 5/8	H
	6	12.90	3	*3 5/8	H
	8	15.45	3	5 5/8	WK
	10	18.15	3	5 5/8	WK
	12	22.90	3	5 5/8	WK
30	4	12.00	3	*3 5/8	H
	6	14.10	3	*3 5/8	H
	8	17.25	3	5 5/8	WK
	10	19.90	3	5 5/8	WK
	12	24.75	3	5 5/8	WK
32	4	13.20	3 1/2	4 5/8	K
	6	15.45	3 1/2	4 5/8	K
	8	19.35	3 1/2	5 5/8	WK
	10	22.50	3 1/2	5 5/8	WK
	12	26.85	3 1/2	5 5/8	WK
34	4	14.40	3 1/2	4 5/8	K
	6	17.25	3 1/2	4 5/8	K
	8	21.75	3 1/2	5 5/8	WK
	10	25.50	3 1/2	5 5/8	WK
	12	30.00	3 1/2	5 5/8	WK

Diam.	Face	List Price	Max. Shaft	Lgth. of Bushing	Bush-ing Mark
36	4	\$15.90	3 1/2	4 5/8	K
	6	19.50	3 1/2	4 5/8	K
	8	24.00	3 1/2	5 5/8	WK
	10	28.65	3 1/2	5 5/8	WK
	12	33.75	3 1/2	5 5/8	WK
38	4	19.50	3 1/2	4 5/8	K
	6	21.75	3 1/2	4 5/8	K
	8	26.40	3 1/2	5 5/8	WK
	10	31.05	3 1/2	5 5/8	WK
	12	37.15	3 1/2	5 5/8	WK
40	4	21.00	4 1/2	4 5/8	L
	6	24.00	4 1/2	4 5/8	L
	8	28.50	4 1/2	6 5/8	WL
	10	33.75	4 1/2	6 5/8	WL
	12	40.15	4 1/2	6 5/8	WL
42	4	23.25	4 1/2	4 5/8	L
	6	26.25	4 1/2	4 5/8	L
	8	32.25	4 1/2	6 5/8	WL
	10	37.50	4 1/2	6 5/8	WL
	12	43.50	4 1/2	6 5/8	WL
44	6	29.25	4 1/2	4 5/8	L
	8	35.62	4 1/2	6 5/8	WL
	10	41.25	4 1/2	6 5/8	WL
	12	47.25	4 1/2	6 5/8	WL
46	6	33.00	4 1/2	4 5/8	L
	8	39.00	4 1/2	6 5/8	WL
	10	45.00	4 1/2	6 5/8	WL
	12	50.25	4 1/2	6 5/8	WL
48	6	36.75	4 1/2	4 5/8	L
	8	42.00	4 1/2	6 5/8	WL
	10	48.75	4 1/2	6 5/8	WL
	12	54.00	4 1/2	6 5/8	WL
50	6	40.87	4 1/2	4 5/8	L
	8	47.25	4 1/2	6 5/8	WL
	10	53.25	4 1/2	6 5/8	WL
	12	58.50	4 1/2	6 5/8	WL
52	6	46.50	4 1/2	4 5/8	L
	8	51.00	4 1/2	6 5/8	WL
	10	57.00	4 1/2	6 5/8	WL
	12	63.00	4 1/2	6 5/8	WL
54	6	50.25	4 1/2	4 5/8	L
	8	56.25	4 1/2	6 5/8	WL
	10	61.50	4 1/2	6 5/8	WL
	12	67.50	4 1/2	6 5/8	WL
56	6	54.00	4 1/2	4 5/8	L
	8	60.75	4 1/2	6 5/8	WL
	10	66.75	4 1/2	6 5/8	WL
	12	72.75	4 1/2	6 5/8	WL
58	6	60.00	4 1/2	4 5/8	L
	8	65.25	4 1/2	6 5/8	WL
	10	71.25	4 1/2	6 5/8	WL
	12	78.37	4 1/2	6 5/8	WL
60	6	63.75	4 1/2	4 5/8	L
	8	70.50	4 1/2	6 5/8	WL
	10	77.25	4 1/2	6 5/8	WL
	12	84.00	4 1/2	6 5/8	WL

* Also furnished with size "K" bushings 4 5/8 inches long, maximum bore 3 1/2 inches.

LOOSE PULLEYS

"NELSON PATENT."



The "NELSON PATENT" Pulley is made in two sections, cap-screwed together with a paper gasket placed between the sections, thus making an oil-tight joint. The assembled sections encase a third part, a sleeve which is set-screwed tightly to the shaft and provides the bearing proper for the pulley.

The pulley itself *does not touch the shaft*, much less require a bearing on it. This eliminates the necessity of remachining or replacing the shaft as is often the case where the ordinary loose pulley is used. Furthermore, a badly worn shaft is not a hindrance to an immediate installation. Just enough shaft to permit the sleeve to be concentrically mounted is the only requisite.

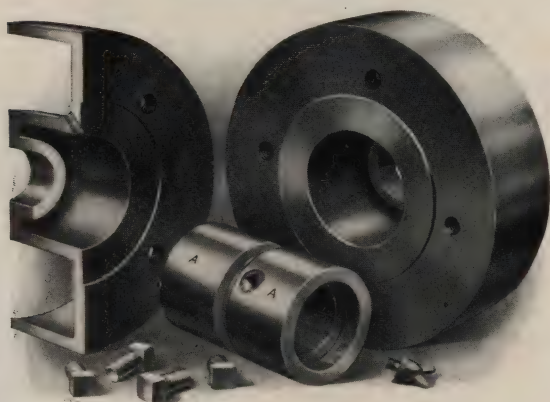
Since the sleeve becomes, in effect, the shaft upon which the pulley revolves, it can be readily seen that a much larger bearing surface is provided. *price is not affected by the size of the bore*, as is the case with ball bearing or roller bearing loose pulleys.

A large annular oil chamber is placed in the sleeve which not only carries a large quantity of oil, but its leak-proof construction retains the oil when needed. Centrifugal force will throw the oil between the bearing surfaces, as the higher the speed the greater this force, it follows that the lubrication is greatest when most needed.

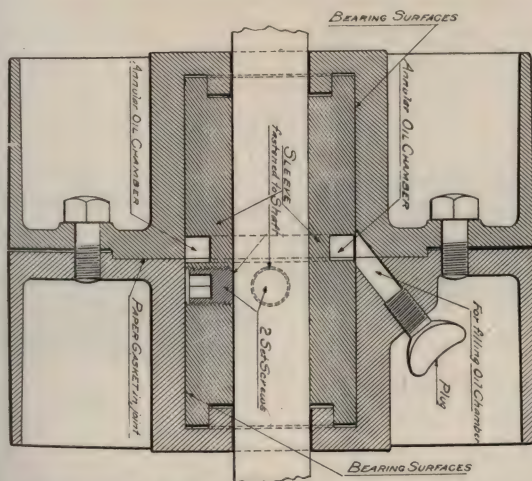
The complete envelopment of the sleeve with its oil chamber makes certain that the oil will not only be kept inside the pulley where it has a chance to lubricate, but that it will be kept free from dust and dirt and thus be in fit condition to provide perfect lubrication.

LOOSE PULLEYS

"NELSON PATENT."



THE PULLEY DISMANTLED.



SECTIONAL VIEW OF THE LOOSE PULLEY.

*HOW TO ORDER NELSON PATENT LOOSE PULLEYS

All specifications are interpreted by us as having been given in accordance with the following directions unless otherwise specified at the time order is placed.

Give diameter, face and bore dimensions as follows:

DIAMETER: Measure the TIGHT PULLEY at the center of the face and give this dimension for diameter of the Loose Pulley.

FACE: Give the width of the belt to be run on the Pulley.

Bore: Give the exact calipered diameter of the shaft.

All Pulleys are furnished with crown face unless otherwise ordered.

Flange not necessary on NELSON PATENT LOOSE PULLEY.

If Pulley is desired for any service other than counter-shaft work, kindly advise when placing the order.

BABBITT



STANDARD BABBITT OF WORLD

Magnolia Metal sustains the heaviest loads; runs at highest speeds; has the lowest frictional co-efficient and wonderful wearing quality; is not harmed by grit or dust; never seizes or scores the shaft; saves oil fuel, metal, power and cost of rebabbiting.

It is most economical and desirable for lining machinery bearings also for Piston Packing, Bull Rings, etc.

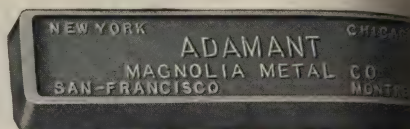
Price per pound



MYSTIC METAL.

It is fully equal to the metals offered as the "same thing" or "just as good" as Magnolia and is generally better. It is clean flowing; it will not seize or score the shaft; it will sustain heavy loads; it is suitable for a wide range of service.

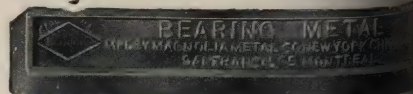
Price per pound



A SUPER GENUINE.

Adamant is the one best Genuine formula made in the one best way. It will stand the extreme of pressure and pounding and possesses the maximum of malleability and fusibility. Its ingredients will not separate and the metal will not be cut by cause cutting the shaft and bearing. In Adamant all of the desirable features of a high tin base metal are preserved and the harmful elements are eliminated. If you have been troubled to overcome try Adamant.

Price, per pound



KOSMIC METAL.

A good all-round medium grade babbitt for use where the work is not too severe. It represents the best we produce consistent with the price charged.

Price per pound

No. 4.

A serviceable low-priced bearing metal for general use where speeds and loads are moderate.

Price, per pound

BABBITT



HOYT'S GENUINE "A" BABBITT METAL.

After many years of careful experimenting, we have perfected a formula which we find makes the very highest grade metal that can be produced for use in motor bearings and high grade, fast running machinery. It will stand up under great pressure and high speed.

Many of the largest builders of automobile motors, dynamos and other high grade machinery are using it with entire satisfaction.

A Babbitt Metal does not necessarily possess high anti-frictional qualities because certain mixtures are made from a given formula. The most important feature in the manufacture of high-class bearing metal is the proper alloying of the different ingredients and to have them perfectly amalgamated.

HOYT'S GENUINE "A" BABBITT METAL is manufactured by machinery of the most up-to-date type, and the process used insures absolute uniformity of mixture. Each ingredient is carefully selected and, by our method of manufacture, every bar is identically alike.

When you buy HOYT'S GENUINE "A" BABBITT METAL you are absolutely certain that you are getting the very highest grade babbitt metal manufactured.

LADLES.



The Newway self skimming ladles feature a new method whereby the metal instead of being poured from the top of the ladle it is poured from the bottom where the metal is always clean and pure. No skimming, no loss, no dirt, or dross, but a clean bearing.

MADE IN FIVE SIZES.

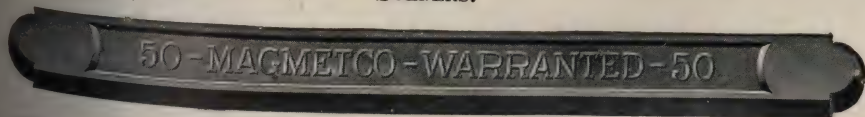
Numbers	4	5	6	7	8
Diameter, inches	4	5	6	7	8
Lead capacity, lbs.	4½	9	18	25	40
Water capacity, pints	½	1	2	3	4
Length of handles, in.	14	24	31	31	31

The bowl is made of refined grey iron.

The handle is made of Swedes iron with steel check nut.

The sliding protector or grip on the handle is another Newway feature.

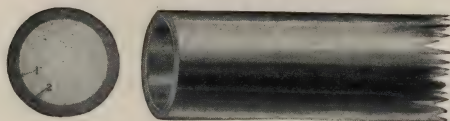
SOLDERS.



WIRE SOLDER.

"Warranted."
 "Strictly."
 "Commercial."
 "Wiping."

GAUGE GLASS



SONDERGLASS THE IMPROVED GAUGE GLASS

While other parts of steam plants have been improved to meet the increasing pressures, which have risen from 40 pounds of forty years ago to as high as 300 pounds at the present time, the quality of the old style gauge glass, during this time, has remained the same.

In SONDERGLASS an improvement has been made, by fusing two separate semimetallic substances into one strong and almost unbreakable glass tube making it practically

TWO GLASS TUBES IN ONE

The different metals used allow for *expansion* and *changes of temperature* to which the glass is subjected, and add greatly to its *pressure-resisting* qualities, as each of these metals has different degrees of expansion. The *inside* of the tube expands in proportion to the temperature of the steam or hot water and the *outside* according to the *temperature* of the air.

PRICE LIST PER DOZEN

WHY A GAUGE GLASS BREAKS	Lgth.				
	In.	$\frac{1}{2}$ - $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
	10	\$5.00	\$7.00	\$8.00	\$10.00
	11	5.40	7.40	8.60	11.00
	12	6.00	8.40	10.00	12.00
	13	6.40	9.00	10.60	13.00
	14	6.60	9.60	11.00	14.00
	15	7.00	10.00	11.80	15.00
	16	7.80	11.40	12.60	16.00
	17	8.00	11.80	13.40	17.00
	18	8.60	12.20	14.20	18.00
	19	9.00	13.00	15.00	19.00
	20	9.00	14.00	16.40	20.00
	22	11.00	14.80	17.20	22.00
	24	12.00	16.80	20.00	24.00
	30	14.00	20.00	23.40	30.00
	36	17.20	24.40	28.40	36.00
	48	23.40	34.20	37.80	48.00
	60	28.00	40.00	47.20	60.00
	72	34.40	48.80	56.80	72.00

GAUGE GLASS CUTTER



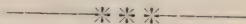
On this CUTTER the sliding lever can be placed close to the work and thereby more power obtained and the steel cutting wheel can be used much longer than in any other cutter.

PACKING



ASBESTOS FIBRE made waterproof with rubber combined with graphite and compressed under tremendous pressure.

Joints made with it do not have to be followed up. Simply set it up firmly at first and Russo will last as long as the iron. When taking apart, Russo leaves the joint cleanly and it is not necessary to renew the packing.



HIGH PRESSURE SECTIONAL PACKING



FOR ALL STEAM PRESSURES UP TO 250 POUNDS.

A LUBRICATED, sectional asbestos packing suitable for high pressure. Its sectional construction allows compensation for wear. ELASTICITY is given by the rubber cushion—and STABILITY by the metallic strips and wire strands incorporated in the asbestos cushion and outside covering.



COMBINATION SECTIONAL STEAM AND HYDRAULIC PACKING



THE SIMPLEST AND MOST EFFECTIVE OF ALL SECTIONAL PACKINGS

It holds absolutely tight either steam or water joints, and is very durable. When used for steam, the rubber back expands and keeps the stuffing-box tight, while it acts as an elastic cushion when used on hydraulic work. One of the sections is made of flax, the other of a firmer material. Slight pressure on the gland forces the flax on the rod and compensates for wear.

Sections of Files

Cross-Sectional Views of Standard Files



8" MILL



8" FLAT



8" PILLAR



8" WARDING



8" HALF ROUND



8" GREAT AMERICAN



8" PIT SAW



8" CABINET



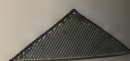
8" KNIFE



8" REGULAR TAPER



8" SLIM TAPER



8" CANT



8" SQUARE



8" ROUND

Simonds Files

Won Gold Medals at two most recent great expositions—Seattle, 1909; San Francisco, 1915.

Write us about quantity discounts and special terms on any size, style, or kind of file.
File Simonds Saws with Simonds Files.

Illustrations Showing the Different "Cuts" of Files in General Use

Files longer or shorter than 12 inches are made proportionately coarser or finer than cuts below

Double Cut

Used in Machine Shops



ROUGH



BASTARD



SECOND CUT

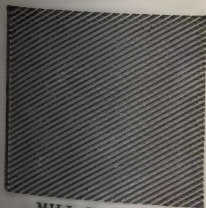


SMOOTH



DEAD SMOOTH

Single Cut



MILL BASTARD



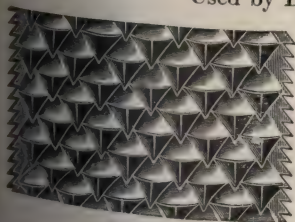
SECOND CUT



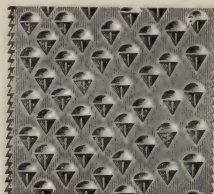
SMOOTH

Rasp Cut

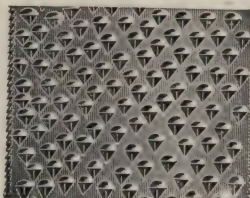
Used by Blacksmiths and Wood Workers



HORSE



BASTARD



SMOOTH

Files and Rasps

Manufactured by

SIMONDS FILE COMPANY, FITCHBURG, MASS., U. S. A.

Revised April 2, 1923

LIST PRICE PER DOZEN

INCH	TAPERS		Slim Taper	Extra Slim Taper	BANDSAW BLUNT & TAPER		Double Ender	Pit Saw	Special Hand Saw	HAND SAW	
	Sgi. Cut	Dbl. Cut			Regular	Slim				Blunt	Blunt Slim
3	2.10	....	2.10	....	....	....	....	....	....	....	....
3 1/2	2.10	....	2.10	....	....	....	....	....	....	....	....
4	2.20	2.90	2.20	2.20	2.90	....	....	4.80	....	2.60	2.50
4 1/2	2.40	3.10	2.30	2.30	3.10	....	....	5.40	....	3.00	....
5	2.60	3.50	2.50	2.50	3.50	....	....	5.40	3.10	3.40	3.10
5 1/2	3.00	....	2.90	2.90	....	....	....	6.10	3.80	....	....
6	3.40	4.70	3.10	3.10	4.70	3.90	....	6.10	4.50	4.30	3.80
7	4.30	5.60	3.80	3.80	5.60	....	3.50	7.00	....	5.40	....
8	5.40	6.70	4.50	4.50	6.70	5.30	3.90	7.50	....	6.60	5.40
9	....	....	....	....	....	....	4.40	....	....	....	....
10	8.10	....	6.40	....	9.70	....	4.90	....	....	....	....
12	12.50	....	9.50	....	....	....	....	....	....	....	....

INCH	WARDING			KNIFE			Planer Knife	Cant Saw	Cross Cut	Cabinet Files	LEAD FLOAT AND WOOD FILES	
	Bast.	2d Cut	Smooth	Bast.	2d Cut	Smooth					Flat	Hf. Rd.
4	4.00	4.80	5.40	5.40	6.10	6.40	....	....	....	....	....	....
5	4.50	5.30	5.80	6.10	6.70	7.10	....	....	....	....	....	....
6	4.90	5.90	6.40	6.90	7.50	7.90	....	5.40	....	8.10	4.80	7.00
8	6.40	7.50	8.20	8.50	9.10	9.50	6.40	6.40	7.50	10.10	6.30	8.50
10	8.70	10.10	11.00	10.10	11.50	12.30	8.60	8.70	9.10	13.70	8.60	10.70
12	....	....	....	13.70	15.20	16.10	....	....	....	18.70	11.80	14.10
14	....	....	....	....	....	....	....	....	....	24.80	16.00	18.50
16	....	....	....	....	....	....	....	....	....	....	21.50	24.70

INCH	FLAT WOOD RASPS		HALF ROUND WOOD RASPS		CABINET RASPS		SHOE RASPS		HORSE RASPS	
	Bast.	Smooth	Bast.	Smooth	2d Cut	Smooth	Flat	Hf. Rd.	Plain 1/2 File	Tanged
6	....	....	8.10	10.10	10.10	11.70	....	....	....	....
8	9.40	12.80	10.10	13.70	12.80	15.50	10.10	10.10	....	....
9	....	....	....	....	....	....	12.20	12.20	....	....
10	12.80	17.50	13.70	18.70	17.50	20.70	13.70	13.70	....	....
12	17.50	23.20	18.70	24.80	22.80	26.80	....	....	12.80	16.80
13	....	....	....	....	....	....	....	....	....	19.60
14	23.20	30.80	24.80	32.90	29.60	33.90	....	....	17.80	23.10
15	....	....	....	....	....	....	....	....	20.90	....
16	30.80	40.90	32.90	43.60	....	....	....	....	24.40	32.20
18	....	....	....	....	....	....	....	....	32.90	....

The abovelist comprises all of the kinds, sizes, and cuts of files that will be regularly carried in stock. Anything differing from these files will be considered as special and will not be manufactured except in cases of urgent necessity; and when manufactured, price will be based strictly upon cost of material and cost of manufacture at time goods are made.

GARDEN HOSE

FIVE REASONS WHY $\frac{5}{8}$ -IN. IS THE LOGICAL GARDEN HOSE SIZE

1. Most hose faucets have but $\frac{1}{2}$ in. waterway. The hose should be a little larger than the faucet, but $\frac{3}{4}$ in. is larger than necessary, $\frac{5}{8}$ in. is exact right.
2. $\frac{5}{8}$ in. hose kinks less readily than $\frac{3}{4}$ in., because it is firmer than $\frac{3}{4}$ in.
3. $\frac{5}{8}$ in. hose weighs less than $\frac{3}{4}$ in. It is therefore more desirable for women and children to use.
4. $\frac{5}{8}$ in. hose costs less than $\frac{3}{4}$ in. and gives equal service.
5. $\frac{5}{8}$ in. stands a higher bursting pressure than $\frac{3}{4}$ in., and for low pressure is preferable to $\frac{1}{2}$ in., because being slightly larger than the diameter of the average faucet, it allows for full flow of the water.

STANDARDIZED GARDEN HOSE

(MADE $\frac{5}{8}$ -In. ONLY.)



BULL DOG.

We began making BULL DOG HOSE 35 years ago. It was the original "multiple construction" Garden Hose, that is— hose made with many plies of light, strong sheeting instead of a few plies of coarse, heavy duck.

See the tube stretch! That's because the BULL DOG tube is made with plenty of new, live rubber in it.

It is made with a high-grade pure gum, seamless tube, seven plies of strong rubberized cotton sheeting and a tough, durable all-rubber cover that takes the hard knocks and wears like iron.

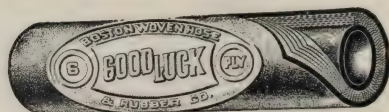
Money cannot buy a better Garden Hose than BULL DOG!



Is put up for shipment in a new, modern, up-to-date package—each 25 or 50-foot length being wrapped with paper like an auto tire and attractively labeled.

STANDARDIZED GARDEN HOSE

(MADE $\frac{5}{8}$ -IN. ONLY.)



GOOD LUCK.

Not every purchaser cares to make his Garden Hose a permanent investment and it is therefore necessary to carry a popular priced grade.

GOOD LUCK GARDEN HOSE is made similar to the famous BULL DOG brand but with 6 plies instead of 7. It is the most popular brand of garden hose on the market and the best selling grade in the world.

GOOD LUCK hose is made with a seamless tube, 6 plies of strong, rubberized sheeting, and a tough all-rubber cover.

Although on the market but about five years, GOOD LUCK hose is already the leading brand in the lines of many of the largest hardware merchants in the United States.



Is put up for shipment in a new, modern, up-to-date package—each 25 50-foot length being wrapped with paper like an auto tire and attractively labeled.

STANDARDIZED GARDEN HOSE

(MADE $\frac{5}{8}$ -IN. ONLY.)



MILO

Some people like a hose of braided, moulded construction.

MILO is really three lengths of hose moulded into one. MILO is made by vulcanizing whole seamless tubes, not merely strips of pure gum rubber, together with two strongly braided cotton jackets into one solid unified hose with a heavily corrugated cover to take the rough wear. MILO hose will not kink in service.



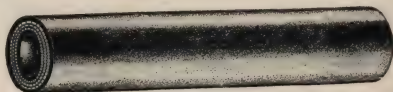
MILO is a corrugated moulded hose in continuous lengths of 250 or 500 feet to a reel, or in 25 or 50-foot lengths coupled—just as you prefer.

CLOTH INSERTION (C. I.) TUBING

This tubing is largely used for air and hand spray pumps for oxy-acetylene welding and for bottling and gas purposes. It is all made with smooth, seamless inner tubes with several plies of light duck to give strength and firmness and is protected by a heavy rubber cover. Every length is tested before it leaves the factory to see that it conforms to the required standard.

In addition to the regular grades which are shown on the following page and which we stock in all usual sizes, we are prepared to furnish special constructions as desired.

(C. I.) AND PUMP TUBING



RED C. I. TUBING.

This is the construction which is most commonly used for air, pump and bottling work. It is an especially high-grade product made with a white inner tube and a red cover. It will be found uniform and durable.

This tube is made in 3, 4 and 5 plies, and in the following sizes: $\frac{1}{4}$ in., $\frac{5}{16}$ in., $\frac{3}{8}$ in., $\frac{1}{2}$ in. and $\frac{5}{8}$ in. In 50-foot lengths only.

RUBBER TUBING

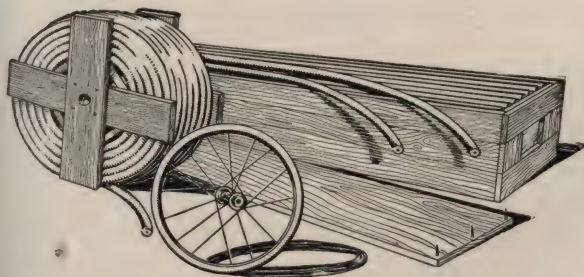


RUBBER TUBING has become a very important branch of rubber manufacture. By far the larger part is now more economically and perfectly manufactured by the use of power-driven machines instead of by the older and more costly hand-made methods.

Our equipment is the best that experience and modern engineering can devise, and produces RUBBER TUBING which is seamless, and perfectly smooth on the inside and made with either a plain or corrugated outer surface. Particular care is taken to insure quality, uniformity and freedom from foreign matters. We manufacture tubing for nearly every purpose, from the lower cost materials for baby carriage and gocart tires through the medium grades for bath sprays and syringes up to the very highest qualities for surgical and laboratory work.

Our tubings are compounded with low specific gravities resulting in an unusually large footage per pound.

RUBBER TIRES FOR CHILDREN'S VEHICLES.

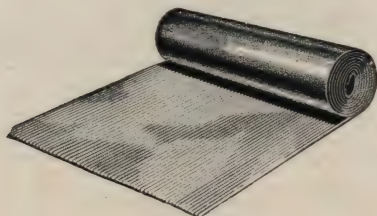


Used first in a small way only on the more expensive baby carriages and perambulators, Rubber Tire is now applied generally to all styles of children's vehicles.

Tire is furnished either in long sections shipped on reels or coiled and tied in lengths of 100 feet, or cut to any desired individual length. All our tire is manufactured lying straight and if in short lengths is packed straight for shipment. This permits of easy wiring and rapid operation in assembling.

CORRUGATED RUBBER MATTING

(FULL ROLLS CONTAIN APPROXIMATELY 50 YDS.)



CORDUROY PATTERN.



CORRUGATED PATTERN

BULL DOG CORDUROY.

A new idea in matting. Made with broad flat top corrugations, offering a wearing surface practically indestructible and especially easy to clean. BULL DOG CORDUROY contains an unusually high percentage of pure rubber and will outwear any corrugated matting on the market. For theatres, moving picture houses, churches and office buildings where the service is severe we strongly recommend BULL DOG CORDUROY.

Carried in stock in $\frac{1}{8}$ in. x 36 in. size. Other thickness and widths up to 48 in. furnished at short notice.

TIGER CORRUGATED MATTING.

Recommended for the same severe service as BULL DOG CORDUROY and offered without reservation as the highest quality of regular style CORRUGATED MATTING on the market. Stock sizes and thicknesses the same as BULL DOG CORDUROY.

No. 174 MATTING.

A splendid value, uniform in quality and workmanship and one of the largest selling grades on the market. No. 174 Matting is competitive in price and superior in quality to many so-called competitive brands.

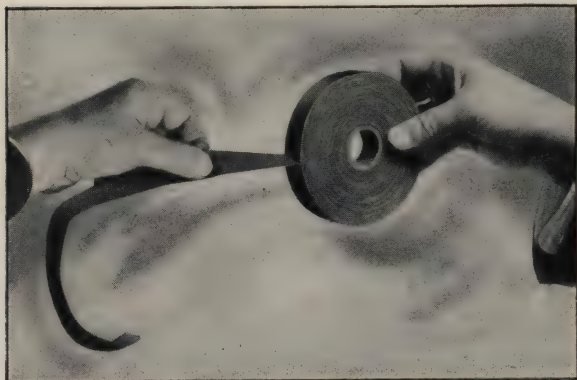
Carried in stock in the following sizes:

$\frac{3}{8}$ in. thick by 36 in. wide.
 $\frac{1}{4}$ in. thick by 24 in. wide.
 $\frac{1}{8}$ in. thick by 27 in. wide.

$\frac{1}{8}$ in. thick by 36 in. wide.
 $\frac{1}{4}$ in. thick by 48 in. wide.
 $\frac{3}{8}$ in. thick by 36 in. wide.

Other thicknesses and widths can be furnished at short notice

FRICITION AND INSULATING TAPES



TRY THIS TEST FOR PINHOLES.

Strip the Tape Quickly from the Roll and Hold to the Light.

Does the Compound Pull Away from the Fabric?

Do Pinholes Appear?

We pay particular attention to these important features.

On account of the excellent quality of sheetings used and the extra high grade compounds with which they are coated, our tapes are very highly rated whenever they are subjected to chemical or physical tests.

Our sheetings are woven to our specifications and must stand a tensile strength of 40 pounds in both warp and filler per inch of width. Instead of having the compound merely "spread" on the surface of the fabric, our tapes are thoroughly impregnated with the rubber, the compound by a special process being actually worked into the meshes of the cloth, insuring tape of high insulation value and heat resisting qualities.

For many years the B. W. H. line of tape has been famous because of its freedom from pinholes, strength of friction even after having been subjected to the rigorous tests of 100° centigrade for 16 hours and for the especially good yardage which has always characterized our well-known brands.

FRICTION AND INSULATING TAPE



MAGNET.

A very sticky tape, strong in friction and free from pinholes, particularly adapted for outside work and very durable. Made in black only, and in the $\frac{3}{4}$ inch width containing about 43 yards to the pound.

STERLING.

STERLING SPLICING COMPOUND. A thoroughly high grade product of excellent quality and of unequalled value at the price. It is strong and elastic and while not as high grade as Alexall brand, will make a thoroughly water-tight joint. Contains about 15 yards to the pound in $\frac{3}{4}$ in. width.



AUTOMOBILE AND BICYCLE TAPE.

EVERGRIP.



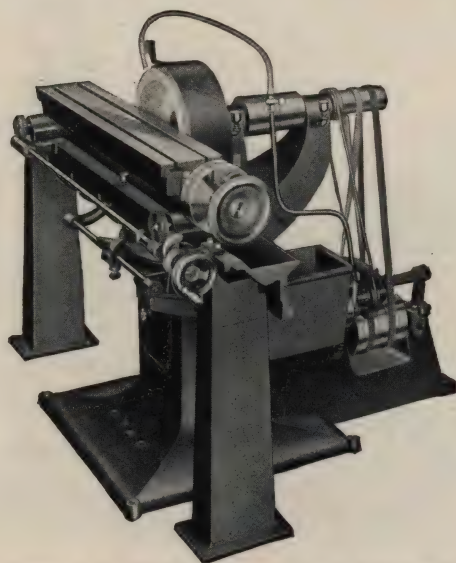
A tape particularly adapted for automobile and bicycle trade. Evergrip tape has for a foundation strong cotton sheeting which before being spread with the adhesive compound is first calendered and prepared for spreading by being thoroughly impregnated with a high-grade rubber friction, thus guaranteeing a tape free from pinholes and other defects.

Evergrip tape will hold fast wherever applied. The surfacing compound is strong and fibrous and as nearly moisture-proof as possible.

Evergrip tape is put up in attractive packages which make excellent display and is packed as follows:

$\frac{3}{4}$ in. width put up in 1, 2, 4 and 8-oz. rolls 1 and 2 oz. rolls are packed in 1-lb. containers; $1\frac{1}{2}$ in. width is put up in 1-lb. and $\frac{1}{2}$ -lb. rolls, each roll packed in individual carton.

CUP WHEEL GRINDER



26 TO 48-INCH STYLE L FULL AUTOMATIC CUP WHEEL GRINDERS

EXTRA HEAVY ONE-PIECE BASE, KNIFE BAR AND POST SUPPORTS.

12 INCH CUP WHEEL

CUT ILLUSTRATES 32 INCH STYLE L GRINDER

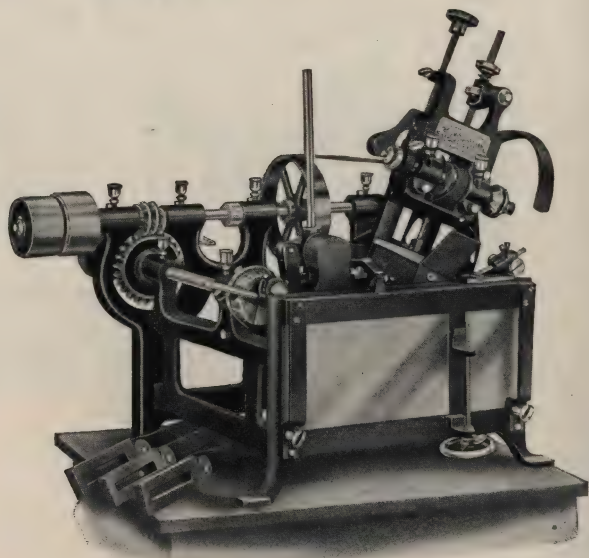
L 26 Inch Grinder, Approx. Wt., 1000 Lbs.	.....	See
L 32 Inch Grinder, Approx. Wt., 1100 Lbs.	.....	Discount
L 38 Inch Grinder, Approx. Wt., 1150 Lbs.	.....	Sheet
L 44 Inch Grinder, Approx. Wt., 1250 Lbs.	.....	
L 48 Inch Grinder, Approx. Wt., 1250 Lbs.	.....	

T and L pulleys $4\frac{1}{2} \times 3\frac{3}{4}$ inch face; recommended speed, 1200 to 1500 r. p. m. Each grinder is carefully tested, fully equipped, and securely crated. Ready for use on the application of power. Extra for THIN KNIFE GRINDING ATTACHMENT OR ACME KNIFE BAR furnished only on order.

24 Inch Attachment for style L	.....	See
30 Inch Attachment for style L	.....	Discount
36 Inch Attachment for style L	.....	Sheet
42 Inch Attachment for style L	.....	
48 Inch Attachment for style L	.....	

ADAPTATION—Suitable for planer, hog, paper, veneer, tobacco, huller and stone knives, shear blades, die blocks and all similar work within the capacity of the size selected. Will grind flat or concave bevel on any desired angle or square edge. Suitable for laid-up or heavy machine knives and equipped on special order with attachment for thin knives.

SAW SHARPENER



No. 3—2 TO 6-INCH BAND RIP OR RESAW SHARPENER

R. H. or L. H. as Ordered

Cut shows L. H., the Saw Surrounding the Sharpener

No. 3A—Sharpener, no back pawl or support for saws, Approx.
Wt., 275 Lbs.

No. 3B—With adjustable pulleys for saws, Approx. Wt., 475
Lbs.

No. 3C—With double feed, 6' post brackets and back pawl,
Approx. Wt., 300 Lbs.

No. 3E—R. and L. with double feed and 10 post brackets,
Approx. Wt., 325 Lbs.

Driving pulley 4 in., 1½ in. belt; Speed 750, 30 teeth; Floor space, 26x30 in.
30 in. high; Wt. boxed, 395, 600 and 410 lbs.; 15, 19 and 15 cu. ft.

Order by style number and give hand of saw and style of teeth wanted.
We recommend the No. 3C type.

We will furnish an iron leg, wood frame table, 21x27x32 inches high, on
which to mount the Sharpener, extra, or customer can erect a suitable
table at mill. Iron legs only, extra. Blower Outfit extra.

Regular equipment with this Sharpener in each style number, comprise
arbor adjustment, adjustable and rotating forms, positive stop, belting and
emery wheel. We recommend the back pawl and post bracket system for
handling the saw. The style number indicates how this latter equipment is
furnished. This Sharpener has been very extensively sold in the United
States and foreign countries.

Extra grinding wheels and Metcalf Wheel Dresser furnished on order.

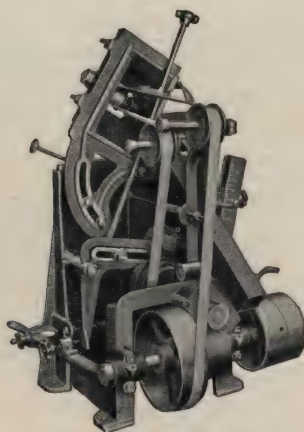
Factory
Price

See
Discount
Sheet

SAW SHARPENERS



FRONT VIEW



BACK VIEW

No. 133 AUTOMATIC BAND RESAW SHARPENER

FOR SAWS 1 TO 6 INCHES WIDE. R. H. OR L. H. AS ORDERED

(CUT SHOWS R. H. —SAW TO SURROUND SHARPENER)

Factory
Price

No. 133—With Supports for saws, Approximate Weight
430 lbs. Factory price See discount sheet.

T. and L. pulleys 6 inch diameter, 2 inch belt; recommended speed, 600 r.
p. m. Grinding wheel, 8 inch diameter, $\frac{5}{8}$ inch arbor hole, thickness to suit.
Floor space, 21x28 inches. Extreme height, 37 inches.

Will be equipped on order for motor drive. Give current specifications.
Special grinding wheels and wheel dresser furnished on order. Suitable for
saws having teeth spaced from $\frac{1}{2}$ to $1\frac{3}{4}$ inches.



SAW SUPPORTS FOR NO. 133 BAND SHARPENER

NO. 133 BAND SHARPENER

REGULAR EQUIPMENT—One 8 inch grinding wheel, all necessary internal belting, oil cups, adjustable cams, and supports for saws.

ESSENTIAL INFORMATION—Give range in gauge and width of saws, spacing of teeth from point to point, drawings or rubbings on paper to show the gullet outlines, and hand of sharpener required. Instruct as to extra grinding wheels, wheel dresser, etc.

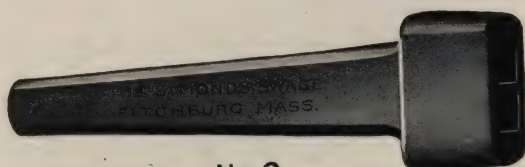
SPECIAL ADVANTAGES—Adapted for sharpening band rip or resaws from 1 to 6 inches wide having teeth from $\frac{1}{2}$ to $1\frac{3}{4}$ inches from point to point. Machine is full automatic and with especially wide range of adjustment to readily handle the wide variations in saws—width, gauge, spacing and shape of teeth, etc., employed in many classes of industry. In this machine there has been developed a new type of construction which has proven especially serviceable for ship yards, furniture factories, carriage and wagon works, sash and door factories, and in fact all woodworking industries employing narrow band saws from 1 to 6 inches wide with teeth from $\frac{1}{2}$ to $1\frac{3}{4}$ inches spacing. Not only has an especially compact, rigid construction been secured, insuring unusual accuracy of action and long life of machine for an automatic grinder of this size and weight, but the adjustments provided, the manner of determining where to set the feeding and grinding controls to adapt to any required width of saw and shape and spacing of teeth within capacity of machine, adds greatly to the convenience and practical value of the grinder, enabling even an unskilled operator to readily learn to quickly adjust to the various saws that may be in use, and to quickly change from one size to a wider or narrower saw with different shape and spacing of teeth.

The main frame is cast in one solid piece, affording a strong, heavy, rigid support for the working mechanism, and the shafts, cams, rollers and bearings are made especially large; grinding wheel head equipped with bearings to take up all wear, and the construction throughout is of the best, insuring a durability of service and a smooth, even, accurate action which resaw users have not been accustomed to expect from comparatively light machines as formerly employed. The action is full automatic, requiring little or no attention from the operator when the saw is put on the machine until the grinding is completed and the saw ready to be removed. Each saw is automatically fed to the grinding wheel, ground and sharpened to an exactly uniform size and shape, with keen cutting points and smooth finish, leaving them perfectly fitted ready for sawing, and should not be touched with a file. No hand filing can equal the automatic action of these machines. With the comparatively simple construction here secured, enabling a superior and durable service at a moderate price, no narrow band saw user should fail to provide an automatic sharpener for keeping his saws properly fitted.

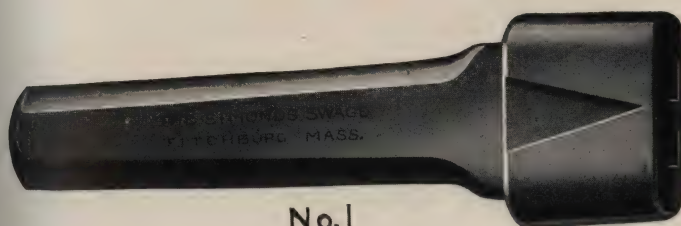
Swages or Upsets



No.3



No.2



No.1

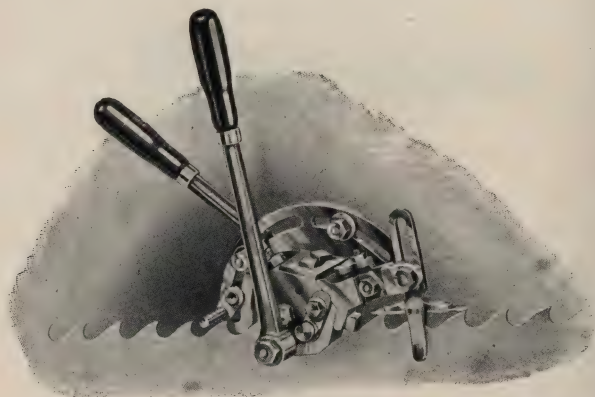


This sectional view shows the construction of the Simonds Swage. Jaw No. 1 spreads or shapes the point of the tooth. Jaw No. 2 squares up the cutting edge and gives body to the swaged point.

	Each	Net Weight
Simonds Swage, No. 1, for saws 10 gauge and heavier.....	\$5.50	18 ounces
" " No. 2, for saws 11 gauge and lighter.....	4.50	8 "
" " No. 3.....	3.50	3 "
" " (Special), for wide band saws.....	4.50	8 "

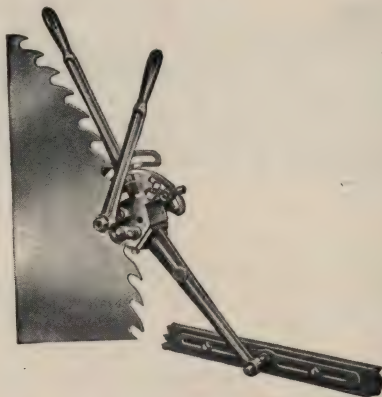
Write for Discounts

SAW SWAGES



HANCHETT BAND AND GANG SAW SWAGE

		Factory Price
Size No. 0—For saws 8 to 13 gauge, Approx. Wt., 17 Lbs.	.....	See
Size No. 1—For saws 13 to 16 gauge, Approx. Wt., 12 Lbs.	.....	Discount
Size No. 2—For saws 16 to 18 gauge, Approx. Wt., 5 Lbs.	.....	Sheet
Size No. 3—For saws 18 to 26 gauge, Approx. Wt., 3 Lbs.	.....	



HANCHETT CIRCULAR SAW SWAGE (STYLE A)

		Factory Price
Size No. 1—For saws 5 to 10 gauge, Approx. Wt., 25 Lbs.	.....	See
Size No. 0—For saws 8 to 12 gauge, Approx. Wt., 18 Lbs.	.....	Discount
Size No. 2—For saws 11 to 16 gauge, Approx. Wt., 13 Lbs.	.....	Sheet

SAW SWAGES

AMERICAN OVAL DIE SWAGE FOR CIRCULAR SAWS

STYLE. A, B, C, D AND E—CUT SHOWS STYLE C
Style A—Includes bracket for supporting swage, attached to bench.

Style B—Swage rides the saw on the arbor.

Style C—Includes bench attachment for holding both saw and swage.

Style D—Includes Style C equipment and in addition a jointer for rounding the jaws.

Style E—Includes Style C equipment, and also a com-

ined jointer and side file attachment for jointing or rounding the saws and dressing the teeth on both sides by means of files held one on each side and one at the points of the teeth, adjustable by hand wheel.

AMERICAN OVAL DIE SWAGES FOR CIRCULAR SAWS

STYLE A

Factory
Price

No. 10—Circular saws	5 to 10 gauge, Approx.	Wt., 25 Lbs.	.....	See
No. 12—Circular saws	8 to 12 gauge, Approx.	Wt., 18 Lbs.	.....	Discount
No. 14—Circular saws	10 to 16 gauge, Approx.	Wt., 14 Lbs.	.....	Sheet
No. 15—Circular saws	11 to 18 gauge, Approx.	Wt., 12 Lbs.	.....	
No. 16—Circular saws	13 to 19 gauge, Approx.	Wt., 10 Lbs.	.....	

STYLE B

No. 10—Circular saws	5 to 10 gauge, Approx.	Wt., 24 Lbs.	.....	See
No. 12—Circular saws	8 to 12 gauge, Approx.	Wt., 17 Lbs.	.....	Discount
No. 14—Circular saws	10 to 16 gauge, Approx.	Wt., 14 Lbs.	.....	Sheet
No. 15—Circular saws	11 to 18 gauge, Approx.	Wt., 10 Lbs.	.....	
No. 16—Circular saws	13 to 19 gauge, Approx.	Wt., 8 Lbs.	.....	

STYLE C

No. 10—Circular saws	5 to 10 gauge, Approx.	Wt., 54 Lbs.	.....	See
No. 12—Circular saws	8 to 12 gauge, Approx.	Wt., 40 Lbs.	.....	Discount
No. 14—Circular saws	10 to 16 gauge, Approx.	Wt., 30 Lbs.	.....	Sheet
No. 15—Circular saws	11 to 18 gauge, Approx.	Wt., 26 Lbs.	.....	
No. 16—Circular saws	13 to 19 gauge, Approx.	Wt., 20 Lbs.	.....	

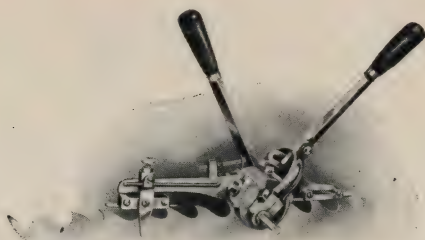
STYLE D

No. 10—Circular saws	5 to 10 gauge, Approx.	Wt., 58 Lbs.	.....	See
No. 12—Circular saws	8 to 12 gauge, Approx.	Wt., 44 Lbs.	.....	Discount
No. 14—Circular saws	10 to 16 gauge, Approx.	Wt., 34 Lbs.	.....	Sheet
No. 15—Circular saws	11 to 18 gauge, Approx.	Wt., 30 Lbs.	.....	
No. 16—Circular saws	13 to 19 gauge, Approx.	Wt., 24 Lbs.	.....	

STYLE E

No. 10—Circular saws	5 to 10 gauge, Approx.	Wt., 62 Lbs.	.....	See
No. 12—Circular saws	8 to 12 gauge, Approx.	Wt., 48 Lbs.	.....	Discount
No. 14—Circular saws	10 to 16 gauge, Approx.	Wt., 38 Lbs.	.....	Sheet
No. 15—Circular saws	11 to 18 gauge, Approx.	Wt., 34 Lbs.	.....	
No. 16—Circular saws	13 to 19 gauge, Approx.	Wt., 28 Lbs.	.....	

SAW SWAGES



AMERICAN OVAL DIE SWAGE
FOR BAND AND GANG SAWS

	Factory Price
No. 10—For saws 10 to 13 gauge, Approx. Wt., 28 Lbs.	See
No. 12—For saws 12 and 13 gauge, Approx. Wt., 22 Lbs.	Discount
No. 14—For saws 14 to 16 gauge, Approx. Wt., 15 Lbs.	Sheet
No. 15—For saws 15 to 18 gauge, Approx. Wt., 13 Lbs.	
No. 16—For saws 16 to 20 gauge, Approx. Wt., 6 Lbs.	



HANCHETT BAND SWAGE SHAPER

	Factory Price
Size No. 1—For saws 10 to 12 gauge, Approx. Wt., 9 Lbs.	See
Size No. 2—For saws 12 to 18 gauge, Approx. Wt., 7 Lbs.	Discount
Size No. 3—For saws 16 to 22 gauge, Approx. Wt., 5 Lbs.	Sheet



4-INCH BAND, RIP OR RESAW OUTFIT

SPECIFY HAND OF SHARPENER REQUIRED. CUT SHOWS L. H.

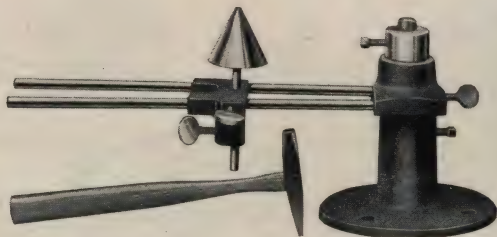
To operators of band rips or resaws ranging four inches or less wide, we especially recommend the complete and low priced filing room outfit itemized below, suitable for saws having teeth spaced 1 inch or more from point to point, with usual gullet outlines, an outfit that is high class in every respect for saws within its capacity, and that is adapted to afford the finest possible service.

The stretcher, brazing clamp, swage, shaper and saw tools correspond to types for saws up to 6 inches wide, differing slightly in design but mainly in weight and lesser cost of manufacture.

	Factory Price	
No. 412C—Sharpener, with belting, back pawl and 6 post brackets, Approx. Wt., 265 Lbs.		
No. 413 —Saw Stretcher, Approx. Wt., 155 Lbs.		
No. 403 —Brazing Clamp with Irons, Approx. Wt., 85 Lbs.		
No. 25 —Iron Filing Clamp with 36 inch Jaws, Approx. Wt., 65 Lbs.		
No. 605 —Lap Grinder, Approx. Wt., 100 Lbs.	See	
No. 2 —Hanchett Band Saw Swage	Discount	
Swage Shaper	Sheet	
Hammering Outfit comprising Anvil, Pair of Hammers, Doghead and Crossface, Straight Edge, Tension and Back Gauge, 1 oz. Silver Solder and 4 oz. Brazing Compound		

The above outfit can be ordered with full confidence in being well supplied.

THE IMPROVED SETTING STAKE



Our IMPROVED SETTING STAKE is suitable for setting fine or coarse cut off saws and is so constructed that the cone slide can be turned to the right or left enabling the operator to set a Rip Saw diagonally across the teeth thus giving the front of the tooth more set leaving clearance in the back.



FILER'S SAW HAMMERING TOOLS

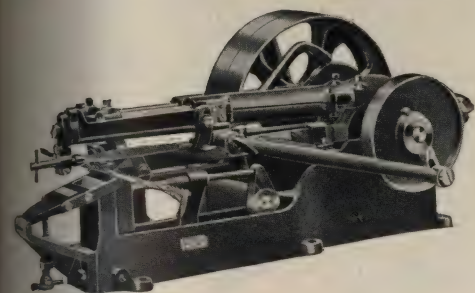
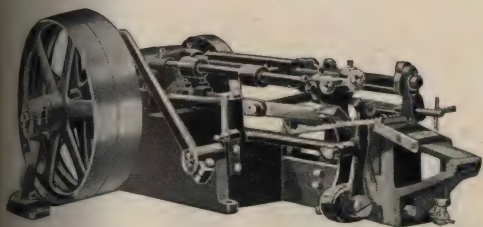
Swaging Hammers in sizes $\frac{3}{4}$, $\frac{7}{8}$ and 1 inch. Crossface Hammers, long and cross peen, $1\frac{1}{2}$ to 10 lbs. Doghead Hammers, round face, $1\frac{1}{2}$ to 10 lbs. Combination Hammers, round face and long peen, $1\frac{1}{2}$ to 10 pounds. Twist Face Hammers, two twist peens, $1\frac{1}{2}$ to 10 lbs. All Hammers of fine steel, expertly ground, polished and hung with hickory handle. Our Hammers are the finest obtainable.

SAW FILERS

AUTOMATIC SCROLL BAND SAW FILERS

THOUSANDS SOLD AND IN
SATISFACTORY USE

Our Band Saw Filers have received added improvements from time to time (demonstrated by practical every day use on a great variety of saws to be desirable), and we offer these machines as representative of the very best to be had in completeness and efficiency, as well as in material and labor costs and general intrinsic value. Our sale of these machines has resulted in such uniform satisfaction to our numerous customers that we consider that there can be no question about one of these machines giving satisfaction, unless ordered for saws for which it is in no way adapted.



Support saw on pegs, racks or pulleys—in latter case loosely strained to avoid being given any momentum when feeding ahead. Every machine is adjusted to a saw and tested before shipment and will go forward adjusted to any spacing or width of saw as customer directs. We adjust saw clamp to suit saws of 18 to 20 gauge and re-adjustment of clamping device is rarely necessary unless saw is heavier or lighter. Adjust saw rest for back of saw so that bottom of gullets of teeth extend about $\frac{1}{32}$ inch above top of clamps. Adjust and time the cam lever that controls clamping lever to clamp instantly after pawl reaches end of forward movement. Clamp saw according to its gauge, snug, but not too tight. The pawl should always push the tooth last filed, and as the pawl rides on an adjustable steel shoe, which can be set forward or backward at will, it can readily be made to feed the proper tooth and ride over those behind this tooth, regardless of spacing. The stroke of pawl is adjustable but requires little attention, except to see that the end of forward stroke is right to suit the position of file when in position for filing tooth. To feed tooth further ahead turn adjusting screw in pawl lever inward, and outward for opposite effect. The file holders are adjustable and the front holder laterally, and it is regular practice to adjust file to take maximum cut at front end of file. File may be rolled to any angle desired, but in re-adjusting or changing files see that the pawl feeds saw ahead to suit the cutting edge of file. Accompany order with statement as to range in width and spacing and on what you want it adjusted before shipment.

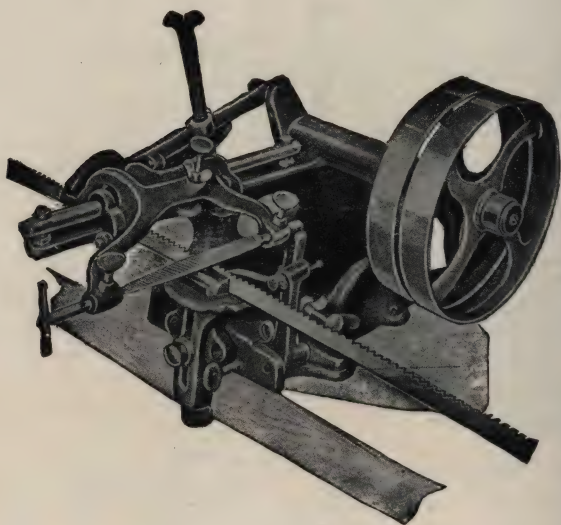
BAND SAW FILES with face $\frac{3}{8}$, $\frac{7}{8}$, $1\frac{1}{8}$ and $1\frac{1}{2}$ inch wide, in stock for prompt shipment.

	Factory Price	See
No. 40 —For saws $\frac{1}{8}$ to 1 inch wide, spacing $\frac{1}{2}$ inch or less, ...		Discount
No. 40A—For saws $\frac{1}{8}$ to 2 inches wide, spacing $\frac{1}{2}$ inch or less, ...		Sheet
No. 49B—For saws $\frac{1}{8}$ to 3 inches wide, spacing $\frac{1}{2}$ inch or less, ...		

Weight, net 105 lbs.; crated, 155 lbs.; boxed, 200 lbs.

Measurements, 34x18 12 inches. T. and L. pulley, 12x $1\frac{1}{2}$ inches, 50 R. P. M.

BAND SAW FILING MACHINE



AUTOMATIC BAND SAW FILING MACHINE

Solidly built and so simple that it takes but a few moments to regulate and adjust the saws. Needs no attention after once being started.

The machine makes the same motion as a person would in filing by hand.

Old saws with uneven teeth are filed as perfect as new saws. All teeth are filed to a proportionate height.

The pressure of the file is adjusted by a spring.

Movable parts are operated by one shaft. No lost motion. No gears. Everything, simple, durable and reliable. Fewer wearing parts, less repairs.

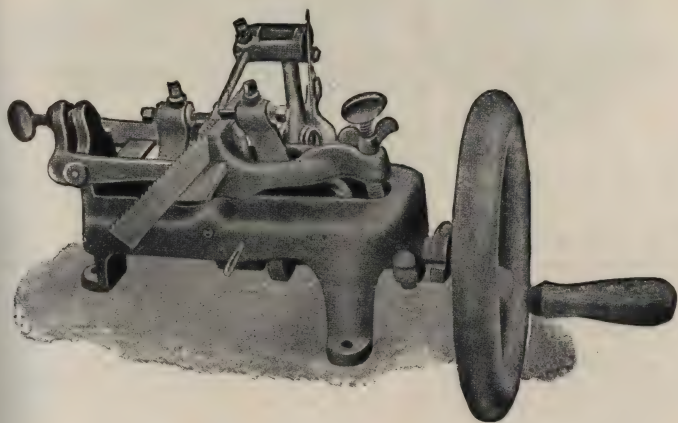
The files used are ordinary 6 inch taper saw files. The feed finger is adjustable to teeth from $\frac{1}{16}$ to $\frac{5}{8}$ inch spacing.

The vise will take saws from $\frac{1}{8}$ to $1\frac{1}{2}$ inches in width.

The speed should be from 56-60 revolutions per minute, the machine filing the same number of teeth. No vibration. No clutch pulley, but a tight and loose pulley.

The machine does not injure the point of the tooth in any way and leaves no burr or bevel on the face or back of the tooth.

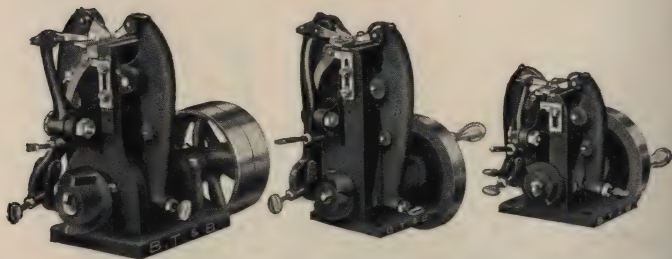
BAND SAW SETTING MACHINE



BAND SAW SETTING MACHINE

This machine will give a fine, medium or coarse set. The feed finger is adjustable to teeth from $\frac{1}{8}$ to $\frac{5}{8}$ inch space. The vise will take saws from $\frac{1}{2}$ to $1\frac{1}{2}$ inch in width and by automatically gripping the saw while tooth is being set, will prevent twisting of any fine and narrow saw blades. All adjustments for different widths, teeth, etc., are regulated by but two thumbscrews. The speed should be 100 revolutions (200 teeth) per minute. The saw can be set in four or five minutes. The Machine can be operated by power if desired.

BAND OR MEAT SAW SETTERS



SETTERS FOR NARROW FINE TOOTH BAND OR MEAT SAWS

The Finest Setters Ever Produced. Thousands Sold and in Satisfactory Use.

No. 83A Power
For Saws $\frac{1}{8}$ to 3 in. wide
 $1\frac{1}{4}$ -in. spacing or less

No. 83 Hand
For Saws $\frac{1}{8}$ to 3 in. wide
 $1\frac{1}{4}$ -in. spacing or less

No. 82 Hand
For Saws $\frac{1}{8}$ to 1 in. wide
 $\frac{5}{8}$ -in. spacing or less

Factory
Price

No. 83A Automatic Power Band or Meat Saw Setter.....See discount sheet

Approximate Weight
45 lbs. net, 65 lbs. crated
Floor Space
10x14x17 inches

Pulley
6x1 $\frac{1}{4}$ inch, 25 to 50 rev.

The No. 83A POWER SETTING MACHINE has been produced to meet a demand coming from saw makers or woodworking plants having a large amount of setting to perform daily and requiring a rapid working, well-built and lasting machine for this service. It has been run at a speed of 200 teeth per minute, although we do not recommend that it be run so rapidly, and at a speed of 100 or less teeth per minute be rapid enough for actual requirements, it should be so run. Each revolution of pulley feeds and sets two teeth. All adjustments readily understood and easily made for varying saw requirements.

NOS. 82 AND 83 AUTOMATIC HAND BAND SAW SETTERS

(Operated by Hand Wheel)

Factory
Price

No. 82 Setter for saws $\frac{1}{8}$ to 1 inch, $\frac{5}{8}$ inch spacing or less

No. 83 Setter for saws $\frac{1}{8}$ to 3 inches wide, $1\frac{1}{4}$ inch spacing or less

No. 82—Net 20 lbs., crated 27 lbs., boxed 35 lbs.

No. 83—Net 29 lbs., crated 50 lbs., boxed 80 lbs.

Special supports for meat saw blades for any Setter, extra.

One revolution of pulley or crank feeds and sets two teeth, one to the right and the other to the left, the feed finger acting on the tooth being set. All these movements are automatic and rapid. The machine gives its blow in such a manner that the tooth stays where set, and as the force of the blow can be instantly regulated by thumb screws at lower end of setting lever it is readily adapted to heavy or light blades and to various grades of temper. The feed and setting mechanism are strong and powerful, the pawl and hammers being made of finest steel and properly hardened. It has been found perfectly suited to all work within its capacity, giving entire satisfaction. All adjustments readily understood and easily made for varying saw requirements.

BAND SAW VISES



COMBINATION BAND SAW VISE

This VISE is for setting and filing band saws.

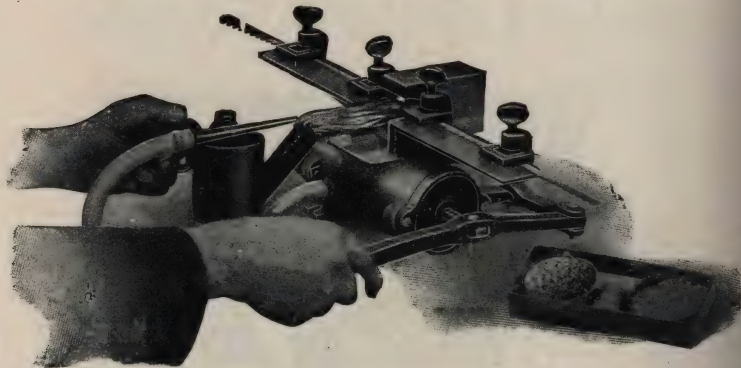
For setting band saws an extra beveled jaw is sent with this vise. This jaw is easily put on by removing one of the jaws with a socket wrench furnished with every vise. This vise is easily adjusted for any gauge band saw by means of a small wheel at the bottom of the vise. The jaws have a firm grip on the band saws, which is released by pulling lever towards operator. The jaws are $6\frac{1}{2}$ inches long and made of tempered steel.



BAND SAW SETTING AND FILING VISE

The vise holds the saw firmly and there is no danger of twisting or injuring the blade. With the setting punch (which we furnish with the vise) and a light hammer a person of practically no experience in saw fitting can set a saw perfectly and rapidly and all teeth will be set alike, insuring smooth work, which is always desirable. This method of setting is used by many of the best saw filers. The width of vise is 6 inches, a size best adapted for fitting small saws.

NARROW BAND SAW BRAZER



With this device band saw brazing is neither an expensive nor difficult operation, for an inexperienced person can file the laps, braze the saw and dress the joint in from five to ten minutes. It is so designed that one casting answers the purpose of a scarfing frame, brazing clamp and air pump, and all that is necessary to complete the outfit is an ordinary flat file. With each brazer we furnish enough wire and spelter to last an ordinary factory two years. While the brazer has a capacity for saws up to $1\frac{1}{2}$ inches wide, we recommend the use of regular brazing clamp and irons as more efficient for saws exceeding 1 inch in width. File laps on the right hand end of clamp, making about a $\frac{3}{8}$ inch lap for saws up to $\frac{3}{4}$ inch wide, $\frac{1}{2}$ inch for saws up to $1\frac{1}{2}$ inches wide. File nearly to a knife-edge. Place the saw in frame, with the laps in center of opening of frame, and in placing the laps together allow a very little in matching the teeth for the expansion of the teeth when hot. Wind the lap firmly, especially the ends, with a piece of steel wire, and under the last turn of the wire place a small amount of the spelter or solder. Put on plenty of powdered borax, place the block of wood back of the saw, leaving a space for the fire to go around the saw.

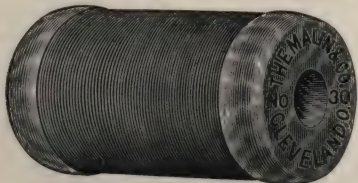
A small block of wood opposite the frame should be used, as it aids in holding the heat. Use kerosene oil in the lamp. See that the lamp wick is smooth on top and a little lower than the blow pipe; light the lamp and holding it three or four inches from the saw, pump the blast on the saw until the solder flows freely. Then blow out the fire, remove the block and pump cold air on the joint. File off the surplus solder between the clamps on either side of the flame. ALWAYS USE THE LUMP BORAX, powdering as you use it, and dampen it before using it. The device is efficient and successful for the purpose and secures a perfect weld and a straight saw.

SILVER SOLDER

FOR BRAZING BAND SAWS

An extremely good flowing and strong solder.

Kept in stock in the following widths $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ and $\frac{7}{8}$ inch. Thickness .003. Put up in one-ounce boxes.



SPECIAL BRASS BRAZING WIRE
Put up in one pound spools.

BRASS SPELTER SOLDER

Coarse long grain.
Put up in one pound packages.

SHEARING AND CROSS-CUTTING MACHINE

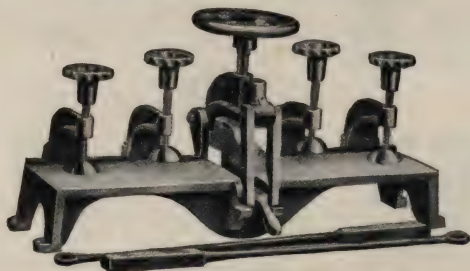


8-INCH BAND OR GANG RESAW SHEARING AND CROSS-CUTTING MACHINE

No. 15A—Shear, Approx. Wt., 235 Lbs. Factory Price. See Discount Sheet.

ADAPTATION—Designed for and sold primarily to sawmills and woodworking plants for shearing long bands, resaws, gangs or circulars from 12 to 14 gauge or thinner, but also suitable for shearing soft steel or other metals in sheets. The use to which these machines are being put in the different industries is exceedingly varied.

BRAZING CLAMPS



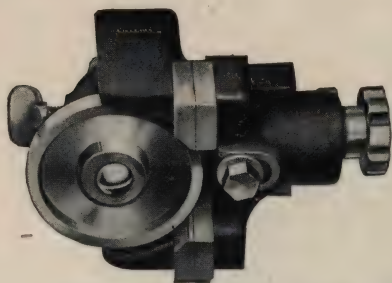
Nos. 19 AND 20—6 AND 8-INCH BRAZING CLAMPS

No. 19—6 inch Brazing Clamp, complete with irons, Approx.
Wt., 150 Lbs. Factory Price. See Discount Sheet.

No. 20—8 inch Brazing Clamp, complete with irons, Approx.
Wt., 285 Lbs. Factory Price. See Discount Sheet.

Floor space: No. 19, 10x15x30 inches; No. 20, 12x17x32 inches.

BAND SAW GUIDE

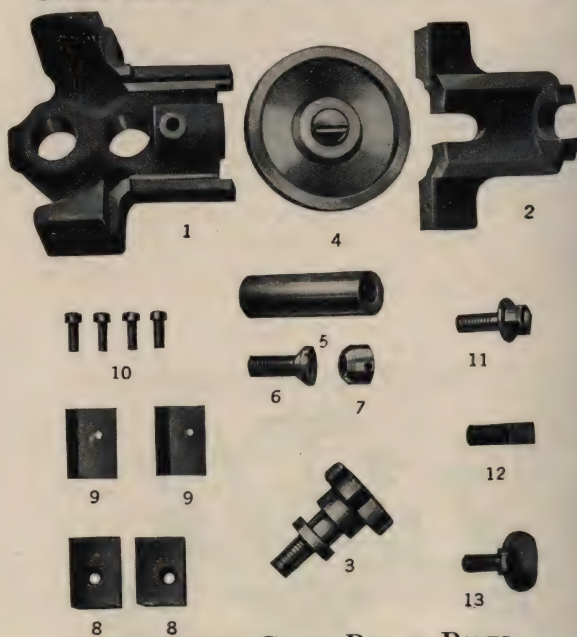


THE WRIGHT NON-FRICTION
BAND SAW GUIDE.

Made in three sizes.

- No. 0—For Saws $\frac{1}{8}$ to $1\frac{1}{4}$ inches.
 No. 1—For Saws $\frac{1}{8}$ to $1\frac{1}{2}$ inches.
 No. 2—For Saws $\frac{1}{4}$ to $2\frac{1}{2}$ inches.

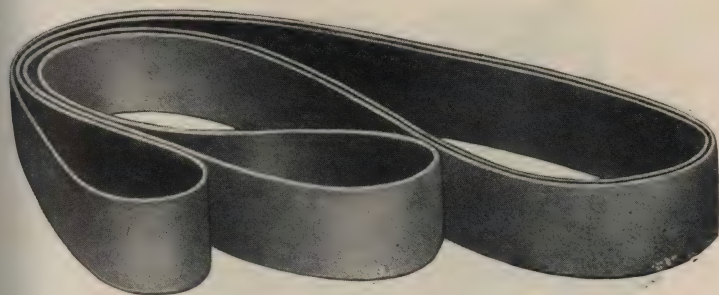
GUIDE REPAIR PARTS—ORDER BY NUMBER



PRICE LIST—GUIDE REPAIR PARTS

	No. 0	No. 1	No. 2
Guide Holder	\$1.35	\$1.35	\$1.65
Regular Straight Shank	.75	.75	.90
No. 1 Main body casting only	3.25	4.25	6.00
No. 2 Cap only	1.80	2.70	4.15
No. 3 Hand wheel		1.00	1.00
8-9-10 Guide Jaws per set	1.80	1.80	4.00
No. 4 Guide Wheel	3.50	3.70	4.00
No. 5 Bushing only	.55	.75	1.00

BAND SAW BANDS



BAND SAW BANDS

Superior stock and painstaking care make the BAND SAW BANDS we handle equal to or better than any other on the market. These bands are uniform thickness and of exact width to insure the saws running true.

In ordering, the diameter of the wheel and the width of face must be specified. Stretching a band to apply it to a wheel renders it liable to injury from cutting while under this tension, therefore, great care should be exercised not to do damage to the band.

Prices on application.



BELT DRESSING

STEPHENSON BAR DRESSING FOR LEATHER BELTS has been on the market 35 years. It is used all over the world. It can be obtained from mill supply houses in nearly every city in the United States.

STEPHENSON eliminates or materially reduces

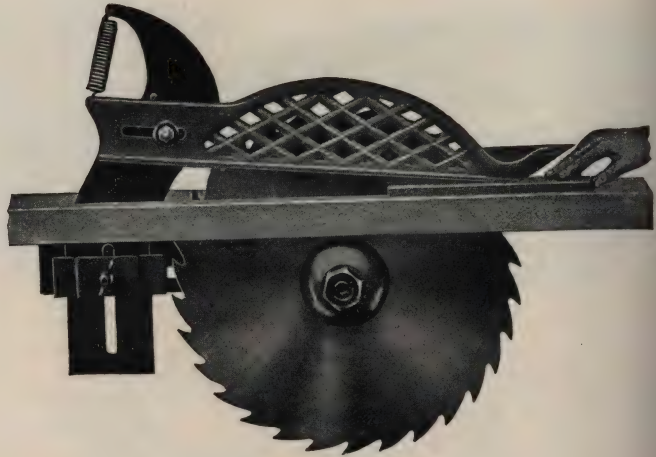
1 The cost of belt slip.

2 The cost of belt wear.

3 The cost of journal friction.

After the belts are once treated with STEPHENSON it requires very little additional dressing to keep them in tip top condition. \$1.00 worth is sufficient to keep the average 100 kw. motor belt in slipless condition for ONE YEAR of ten-hour days. If you pay only 2 cents per kw. hour for the current and approximate 2 per cent slip, you will have saved \$120.00 worth of power—not mention the saving in belt wear and reduced journal friction.

SAW GUARDS

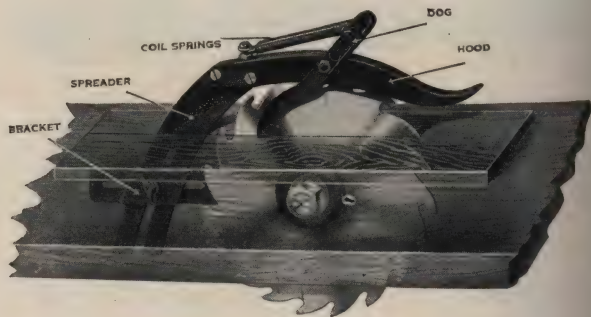


"ACKLEY" STYLE "A"

ENDORSED BY FACTORY INSPECTORS AND LIABILITY INSURANCE COMPANIES

Every machine in your plant should be so safe to operate that you would be willing to operate it yourself. The installation of one of these guards on your saw will make it so.

Recommended for RIP and MITRE SAWS WITH STATIONARY TABLES.



"No Kick Back"

The No-KICK-BACK is made with the tool steel splitter fitted to bracket attached to table and has the additional feature of the no-kick-back which begin to dig in immediately as the stock starts to come back. This feature is very important and prevents what is apt to result in dangerous accidents.

CIRCULAR SAW MANDRELS



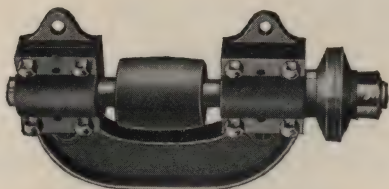
PULLEY INSIDE BOXES



DOUBLE END



CONNECTED BOXES



YOKE

LAMP GUARDS

FLEXCO AND FLEXCO-LOK.

Every unprotected lamp is subject to direct loss through breakage or theft. Lampless sockets are a source of delay and annoyance. Lamp accidents are recognized fire hazards and a source of danger from broken glass to men and to work in progress.

When you place FLEXCO-LOK Guards on your lamps they are under a guard of steel that cannot easily be removed, for the guard locks upon the socket with a patent lock screw that can be opened only by use of the key. Theft as well as breakage is prevented.

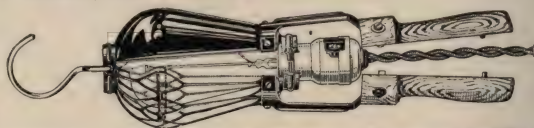
The FLEXCO GUARD is similar to the FLEXCO-LOK, but closes with a round head screw, making a most efficient guard where the locking feature is not necessary.

THE REFLECTOR GUARD.

A Reflector Guard is particularly desirable where a concentrated light is desired. One-half of this guard is enameled shell whose reflecting surface directs the light where it is needed. Reflector Guards are made in both the FLEXCO-LOK and FLEXCO types.

FLEXCO "UNIVERSAL" can be used on either standard brass or any weatherproof socket up to $1\frac{1}{2}$ inches in diameter. They adjust with two bolts instead of plain screws. Will protect any MILL TYPE or straight side lamp from 10 to 50 watt.

Regular type No. 220, list price per dozen \$6.00
Reflector type No. 420-R, list price per dozen \$8.00



FLEXCO AND FLEXCO REFLECTOR PORTABLE GUARDS

These guards may be adjusted in a moment on any extension cord without removal of socket or loss of time. Large hole in handle will admit a heavy reinforced cord. Complete Flexco Split Handle Portables to protect lamps up to 60 watt straight side or 75 watt pear shape are listed in the table below.

For sizes not shown add \$1.00 per dozen portables to the list price of separate units (guards plus handles).

Handles do not fit guards 116, 216, 220, 316-R, 416-R, 420-R.

LIST PRICES.

SUBJECT TO DISCOUNT.

FLEXCO		Socket Size	FLEXCO REFLECTOR	
Size No.	Price (Doz.)		Size No.	Price (Doz.)
670-P	\$25.00	Std. Brass	470-RP	\$27.00
671-P	25.00	Weatherproof, $1\frac{1}{8}$ in. dia.	471-RP	\$27.00
672-P	25.00	Weatherproof, $1\frac{1}{2}$ in. dia.	472-RP	27.00
673-P	25.00	Weatherproof, $1\frac{3}{8}$ in. dia.	473-RP	27.00
674-P	25.00	Weatherproof, $1\frac{5}{8}$ in. dia.	474-RP	27.00

SEPARATE SPLIT HANDLES.

Including the handy hooks and screws for attachment to guards. List price per dozen \$1.00



LAMP GUARDS



FLEXCO-LOK and FLEXCO LAMP GUARDS

PROTECTION FROM BREAKAGE—SECURITY FROM THEFT.

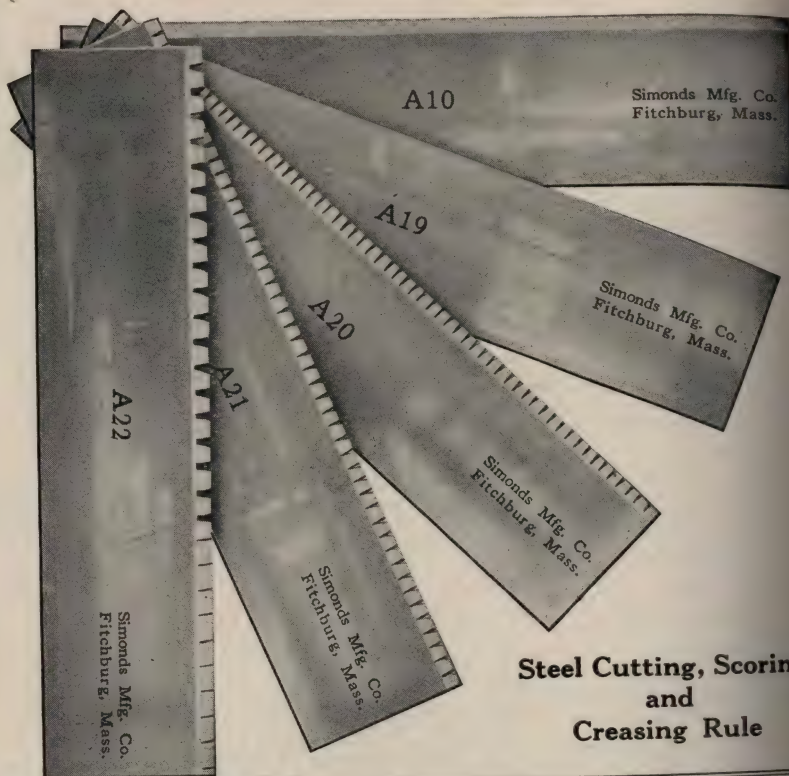
TO OBTAIN CORRECT SIZE FOR WEATHERPROOF SOCKETS, measure full diameter of socket at space next to or between shade holder rings and order according to lot number.

To protect Lamps of sizes	FLEXCO-LOK closed with patent lock screws		All screws rust proof and self-retaining	FLEXCO closed with round head screws	
	Lot Numbers	List Price per Dozen		Lot Numbers	List Price per Dozen
Mazda Lamps 15 to 50 watt	116	\$7.00	Standard Brass $1\frac{1}{4}$ - $1\frac{1}{2}$ in.	216	\$6.00
Mazda Lamps up to 60 watt and	560	9.00	"	670	8.00
75 Watt	561	9.00	Weatherproof, $1\frac{5}{8}$ in. dia.	671	8.00
Nitrogen	562	9.00	Weatherproof $1\frac{1}{2}$ in. dia.	672	8.00
Lamps	563	9.00	Weatherproof, $1\frac{3}{8}$ in. dia.	673	8.00
	564	9.00	Weatherproof, $1\frac{5}{8}$ in. dia.	674	8.00
Mazda Lamps up to 100 Watt and	760	11.50	Standard Brass, $1\frac{1}{4}$ - $1\frac{1}{2}$ in.	870	10.50
100 to 200 Watt	761	11.50	Weatherproof, $1\frac{5}{8}$ in. dia.	871	10.50
Nitrogen	762	11.50	Weatherproof, $1\frac{1}{2}$ in. dia.	872	10.50
Lamps	763	11.50	Weatherproof, $1\frac{3}{8}$ in. dia.	873	10.50
	764	11.50	Weatherproof, $1\frac{5}{8}$ in. dia.	874	10.50
Reflector Guards Mazda					
15 to 50 watt	316-R	9.50	Standard Brass, $1\frac{1}{4}$ - $1\frac{1}{2}$ in.	416-R	8.50
Reflector Guards	360-R	11.00	"	470-R	10.00
Mazda Lamps up to 60 Watt and	361-R	11.00	Weatherproof, $1\frac{5}{8}$ in. dia.	471-R	10.00
75 Watt	362-R	11.00	Weatherproof, $1\frac{1}{2}$ in. dia.	472-R	10.00
Nitrogen	363-R	11.00	Weatherproof, $1\frac{3}{8}$ in. dia.	473-R	10.00
Lamps	364-R	11.00	Weatherproof, $1\frac{5}{8}$ in. dia.	474-R	10.00

One key to each doz. Flexco-Lok Guards. All guards packed nested, one doz. to the package.
Extra Handy Hooks to fit any of above guards, list price per doz., 80c.

A SINGLE BROKEN OR STOLEN LAMP WILL COST MORE THAN A GUARD

Simonds Steel Rule



Steel Cutting, Scoring and Creasing Rule

Number	Name	Height	Thickness	Description	List Price Per Foot
A-10	2 Point Cutting	.923 inch	.029 inch	Hard Black	\$0.10
A-11	3 " "	.923 "	.042 "	" "	.13½
A-12	4 " "	.923 "	.057 "	" "	.17
A-13	6 " "	.923 "	.083 "	" "	.24
A-14	2 " "	.923 "	.029 "	Hard and Polished	.10
A-15	3 " "	.923 "	.042 "	" " "	.13½
A-16	4 " "	.923 "	.057 "	" " "	.17
A-17	6 " "	.923 "	.083 "	" " "	.24
A-18	2 " "	.923 "	.029 "	Soft	.10
A-19	2 " Creasing	.918 "	.029 "	Hard	.11

Scoring and Soft Cutting Rule, same price. Creasing, hard or soft, 2, 3, 4, or 6 points, advance 10 per cent over price of Cutting Rule. Special size Rule made to order.

Perforating Steel Rule

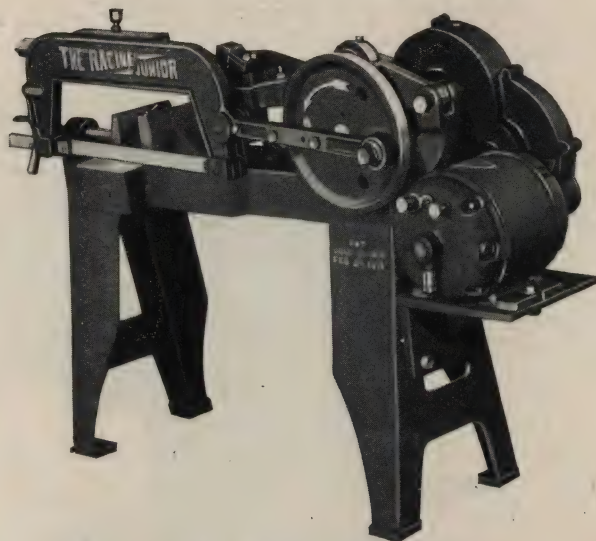
No.	Name	Height	Thickness	Description	List Price Per Foot
A-20	2 Point Perforating	.937 inch	.029 inch	17 teeth to inch, Hard and Polished	\$0.25
A-21	2 " "	.937 "	.029 "	12 " " " " " "	.25
A-22	2 " "	.937 "	.029 "	8½ " " " " " "	.25

(Price 3-Point Perforating Rule, 25 per cent above 2-Point Rule.)

We make all Steel Rule in 30 inch or 24 inch strips, as desired.

Write for Discounts

HACK SAW MACHINE



THE RACINE JUNIOR.

A high grade Metal Cutting machine at a moderate price. Contains all the exclusive features used on "RACINE" machines everywhere. This is a portable electrically driven unit which may be moved instantly from point to point in the shop—in the yards—on the construction job—wherever there is an electric light socket. Owing to its smooth action and lack of vibration, there is no need of bolting the machine to the floor when located temporarily. This is the last word in refinement of design and simplicity of operation.

AUTOMATIC LIFTING DEVICE. This mechanical and absolutely positive device, raises the blade on the non-cutting stroke. The teeth never drag back, no matter how great the pressure on the blade.

EFFICIENCY AND ECONOMY. The "RACINE" Junior cuts faster, truer and more economically than any machine of its kind on the market. The positive draw cut principle makes possible the use of light blades of 21 gauge or heavy hand blades, at high speed. It will pay for its cost many times over in blade saving alone.

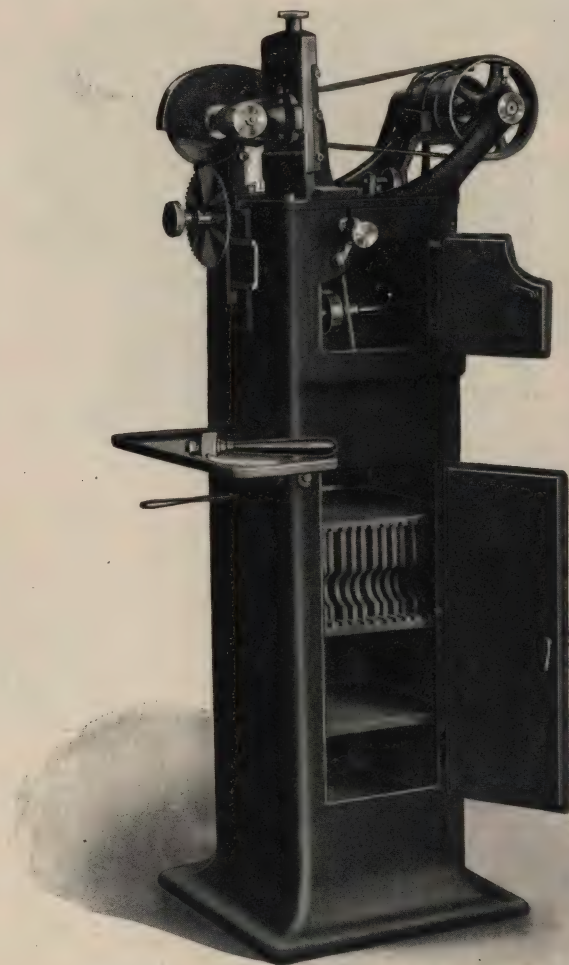
The Racine is Also Manufactured in Belt Driven Type—Write for Circular.

SPECIFICATIONS.

Capacity—0-in. to 4-in. (normal)
 Capacity—0-in. to 6-in. (possible).
 Floor space—44 in. by 12 in.
 Speed—30 to 100 R. P. M.
 Stroke—6 in. (normal).
 Stroke—4 in. (For stock 4½ in. to 6 in.)
 Blades—10 in. and 12 in., 21 gauge.

Height over all—28 in.
 Height to top of table—20 in.
 Net weight—180 lbs.
 Shipping weight—205 lbs.
 Motor—¼ H. P., 1750 R. P. M.

AUTOMATIC SHARPENER FOR METAL CUTTING SAWS

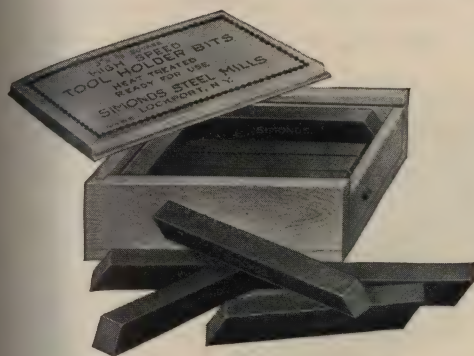


No. 10 AUTOMATIC MILLING OR SLITTING SAW SHARPENER FOR SAWS 2 TO 10 INCHES DIAMETER

T and L pulleys 4 inches diameter, $1\frac{3}{4}$ inch belt; recommended speed, 1200 r. p. m. Grinding Wheel 5 inch diameter, $1\frac{1}{2}$ inch hole, thickness to suit gullet outline. Floor space, 24x18 inches. Extreme height, 55 inches. Approximate shipping weight, 450 lbs.

For Sharpening and Re-cutting Milling or Slitting Saws: Automatically restoring keen cutting points, re-spacing and re-cutting damaged or uneven teeth of saws either slightly worn, or so badly damaged as to be entirely worthless with any or all of the teeth entirely worn down or broken out.

Simonds High Speed Steel Tool Holder Bits



Simonds High Speed Steel Holder Bits cut faster and last longer than others, because they are made of Crucible Steel in which the full percentage of Tungsten, Chrome, and Vanadium is used, bringing a tool of this character to the highest efficiency. Great care is used, not only in the manufacture of the Crucible Steel, but also in the rolling temperatures and the heat treatment. Each piece is heat treated with particular care to bring out the utmost cutting properties.

These bits are cut to standard tool holder lengths with 30 degree bevel on each end. Finished straight and true to size, ready to be ground and put to work. Carried in stock in 5 lb. and 10 lb. boxes, one size or assorted sizes in each box. Prices on application.

$\frac{1}{4}$ inch square x $2\frac{1}{2}$ inches long

$\frac{1}{8}$ inch square x $2\frac{1}{2}$ inches long

$\frac{3}{8}$ inch square x 3 inches long

$\frac{7}{16}$ inch square x $3\frac{1}{2}$ inches long

$\frac{1}{2}$ inch square x 4 inches long

$\frac{5}{8}$ inch square x $4\frac{1}{2}$ inches long

$\frac{3}{4}$ inch square x $4\frac{1}{2}$ inches long

Simonds Flat Ground Stock

Thickness	Width						
	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
$\frac{1}{16}$			1.25	1.55	1.85	2.15	2.50
$\frac{1}{8}$			1.00	1.25	1.50	1.75	2.00
$\frac{3}{16}$	.50	.70	.90	1.10	1.35	1.60	1.85
$\frac{1}{4}$	.55	.75	.95	1.15	1.40	1.65	1.90
$\frac{5}{16}$	.60	.80	1.00	1.25	1.50	1.75	2.00
$\frac{3}{8}$	.65	.90	1.15	1.40	1.70	2.00	2.30
$\frac{7}{16}$	.70	1.00	1.30	1.60	1.90	2.30	2.60
$\frac{1}{2}$	.80	1.15	1.50	1.85	2.20	2.60	3.00
$\frac{9}{16}$	.90	1.30	1.70	2.15	2.60	3.05	3.50
$\frac{5}{8}$	1.00	1.45	1.90	2.35	2.90	3.35	4.00
$\frac{11}{16}$	1.10	1.60	2.10	2.60	3.20	3.80	4.50
$\frac{3}{4}$	1.30	1.80	2.40	3.05	3.60	4.40	5.00
$\frac{7}{8}$	1.50	2.05	2.75	3.50	4.25	5.00	5.75
$1\frac{1}{2}$	1.70	2.50	3.25	4.10	5.00	5.90	6.90

Write for Discounts

Simonds Hack Saw Blades

Hard Edge Blades made in hand sizes only
All Hard Blades in all sizes both hand and power

Prices apply to both



Simonds blades, because they cut with less resistance, remove no more metal than necessary, and outwear other makes, are the most economical Hack Saw Blades on the market.

The steel used in the Simonds Hack Saw is made and toughened by a Simonds process especially for hard cutting service. It is the basis on which this exceptionally high grade blade is built.

Price List

Simonds Hand Hack Saw Blades

Length	Width	Gauge	Teeth per Inch				Per Gross	No. in Box
			Regular	Medium	Fine	Extra Fine		
8 inches	$\frac{1}{2}$ inch	23 = .025	14	18	24	32	8.00	$\frac{1}{2}$ gross
9 "	$\frac{1}{2}$ "	23 = .025	14	18	24	32	9.00	$\frac{1}{2}$ "
10 "	$\frac{1}{2}$ "	23 = .025	14	18	24	32	10.00	$\frac{1}{2}$ "
11 "	$\frac{1}{2}$ "	23 = .025	14	18	24	32	11.00	$\frac{1}{2}$ "
12 "	$\frac{1}{2}$ "	23 = .025	14	18	24	32	12.00	$\frac{1}{2}$ "

Odd sizes, not listed, take price of next longer or wider size of same gauge.

Regular—for cutting soft steel, iron solids, and rails.

Medium—for cutting tool steel, iron pipe, hard metals, and light angle iron.

Fine—for cutting brass, copper, drill rod, medium tubing, and sheet metals.

Extra Fine—for cutting thin tubing and thin sheet metals,

Unless specified, "Regular" blades will be sent

Write for Discounts

Price List

Simonds Power Machine Hack Saw Blades

Length	Width	Gauge	Teeth per Inch		Per Gross	No. in Box
			Regular	Medium		
10 inches	$\frac{3}{4}$ inch	21 = .032	12 or 14	18	\$15.36	$\frac{1}{2}$ gross
10 "	"	21 = .032	12 or 14	18	18.24	"
12 "	"	21 = .032	12 or 14	18	17.88	"
12 "	$\frac{3}{4}$ "	21 = .032	12 or 14	18	21.36	"
14 "	"	21 = .032	12 or 14	18	24.36	"
17 "	"	21 = .032	12 or 14	18	29.04	"

Regular—for cutting solids in iron or steel, and for general shop saw work.

Medium—for cutting brass, castings, iron pipe, heavy tubing, etc.

We recommend (and unless otherwise specified, furnish on orders) power blades with 12 teeth, rather than 14 teeth, as they will cut faster and last longer.

Heavy Power Machine Blades

Length	Width	Gauge	Teeth per Inch			Per Gross	No. in Box
			Regular	Medium	Fine		
10 inches	$\frac{3}{4}$ inch	18 = .049	12* or 14	..	..	\$24.72	$\frac{1}{2}$ gross
10 $\frac{1}{2}$ "	"	18 = .049	9	..	..	25.08	"
12 "	"	18 = .049	9 or 12*	14	18	28.92	"
12 "	"	18 = .049	9* or 12	14	18	37.92	"
14 "	"	18 = .049	9 or 12*	14	18	33.12	"
14 "	"	18 = .049	9* or 12	14	18	43.56	"
14 "	$1\frac{1}{4}$ "	18 = .049	9	..	..	53.52	"
14 "	"	16 = .065	9* or 12	..	..	50.88	"
17 "	"	18 = .049	9 or 12*	14	..	39.72	"
17 "	"	18 = .049	9 or 12*	14	..	51.72	"
17 "	$1\frac{1}{4}$ "	18 = .049	9	..	..	63.36	"
17 "	"	16 = .065	9* or 12	..	..	59.52	"
18 "	"	18 = .049	9 or 12*	..	..	54.36	"
18 "	"	16 = .065	9* or 12	..	..	62.04	"
20 "	"	18 = .049	9 or 12*	..	..	59.52	"
20 "	"	16 = .065	9	..	..	67.92	"
24 "	"	18 = .049	9* or 12	..	..	70.32	"
24 "	"	16 = .065	9	..	..	79.32	"
24 "	$1\frac{1}{2}$ "	16 = .065	9	..	..	119.04	"
30 "	"	16 = .065	9	..	..	147.84	"

*This number of teeth furnished unless the optional number is specified.

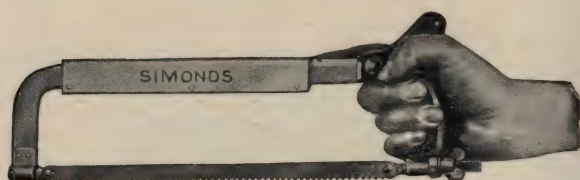
14-inch and 17-inch power blades measure $13\frac{1}{2}$ inches and $16\frac{1}{2}$ inches between centres of holes respectively. All other power blades measure from centre to centre of holes.

Odd sizes, not listed, take price of next longer or wider size of same gauge.

Unless specified, "Regular" blades will be sent

Write for Discounts

Simonds Straight Cut or "Pistol Grip" Hack Saw Frames

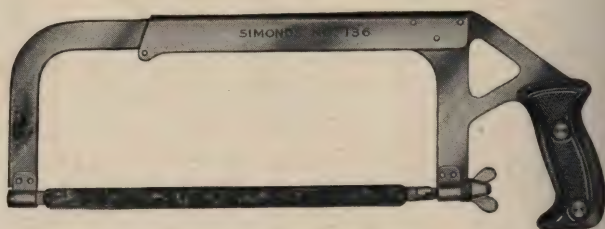


Pat. Feb. 11, 1908

No. 41. Nickel Plated. Heavy Back. Blades can be faced in four directions. Adjustable for blades 8 inches to 12 inches. Packed one in a box.



No. 135. Nickel Plated. Adjustable for blades 8 inches to 12 inches long. $2\frac{1}{2}$ inches from back of blade to inside of frame. Packed one in a box.



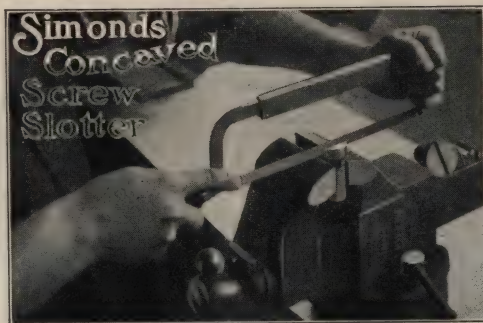
No. 136. Nickel Plated. Adjustable for blades from 8 inches to 12 inches long. Extra heavy back. 4 inches from back of blade to inside of frame. Packed one in a box.

The arrangement of the handle on frames Nos. 135 and 136 protects the hand of the operator from accident or injury caused by being jammed against the work in case of a blade breaking. (Use Simonds HARD EDGE Hack Saw Blades; they are practically unbreakable.)

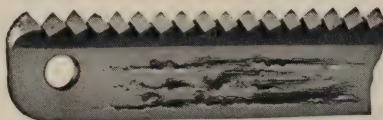
See Discount Sheet for Prices

Simonds Screw Slotting Blades

For Cutting Slots in Screw Heads



A Screw Slotter Blade in a Simonds Adjustable Hack Saw Frame. Note completed slots on different size screw heads.



The sections of the Simonds Screw Slotter Blade shown here illustrate the shape and size of the teeth and the shape of the blade—thick at the tooth edge and concave, making it much thinner at the back. This good clearance prevents binding and makes the blade cut easily.



FOR MACHINE SHOPS. It's a remarkably handy tool. Cutting wide slots in screw heads is only one of many uses to which the Simonds Screw Slotting Blade may be put. Covers a wide range of odd job work. A necessity in every shop. Used like a hack saw blade, and will fit any frame that takes an 8-inch blade. For hand use only. Four 8-inch long blades of same width but different thicknesses to a set. Milled teeth, 14 and 24 to the inch. Unless specified, blades with 14 teeth will be sent.

LIST PRICES

Width	Size		8-Inch		Shipping Weight Per Doz.
	Thickness		Gross	Dozen	
1/2 inch	.109 x .080				17 oz.
1/2 inch	.083 x .065				14 oz.
1/2 inch	.065 x .052				11 oz.
1/2 inch	.049 x .039				9 oz.

Sample set, four different sizes, 8-inch blades

See Discount Sheet for Prices

BAND SAW BLADES FOR CUTTING METALS



FLEXIBLE BACK—HARD EDGE

Hardened on the cutting edge only.

METAL CUTTING BAND SAW BLADES

Recommended for sawing thin Sheet Steel as used on automobile bodies and fenders and Aluminum, Brass, Copper and thin Tubing.

The SPRING TEMPER BLADES are designed to cut the softer metals and will give reasonable service before dulling the points of the teeth, and can then be sharpened by filing. Operates at high speed.

Specify with width, length and gauge, number of teeth to the inch, kind of material to be cut, and speed at which the blade is to operate.

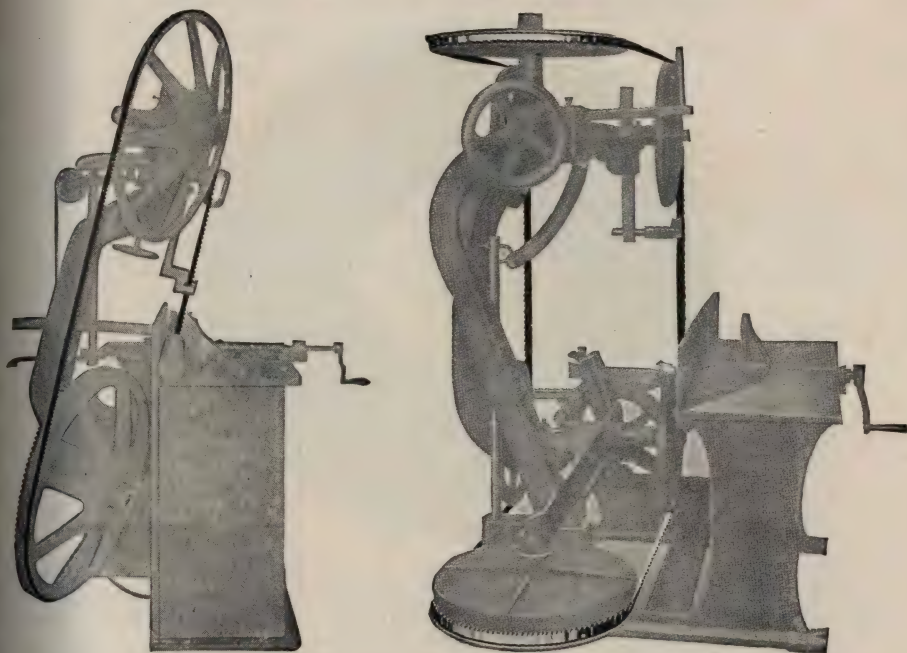
LIST PRICES—SPRING TEMPER

Width, Inches	Thickness	Price per Foot	Price Brazing
$\frac{1}{4}$	.025	.20	.25
$\frac{3}{8}$	.025	.20	.25
$\frac{1}{2}$	.025	.20	.25
$\frac{5}{8}$	.032	.22	.25
$\frac{3}{4}$	.032	.24	.30

Standard number of teeth per inch, 6 to 12.

Saw Blades of different widths, heavier gauge, or with finer teeth than listed are special. Prices quoted on application.

Simonds Metal Cutting Band Saw Blades



Every operator of a Metal Band Saw knows that the cutting power of his machine, whether it be cutting $\frac{1}{2}$ -inch bar or 12-inch round, is vitally dependent on the quality of the Band Saw Blade.

If you wish to improve your cutting results and reduce your blade expense, buy Simonds Saws.

Simonds special alloy steel blades are the most dependable blades on the market. They are made for any style of machine, and with teeth especially selected for the kind of cutting you do. We particularly recommend one of our Band Saws for cutting brass, zinc, and thin steel.

When ordering Metal Cutting Band Saw Blades give the length, width, thickness or gauge, number of teeth to the inch, the class of work to be cut, also the name and style of machine on which the blade is to operate.

List Prices

Width, Inches	Thickness	Price per Foot	Price per Pound	Price Brazing
$\frac{1}{4}$	.025	.07		.20
$\frac{3}{8}$	.025	.07		.20
$\frac{1}{2}$	.025	.07		.20
$\frac{5}{8}$	.028	.08		.25
$\frac{3}{4}$	.032	.09		.30
1	.035	.11		.30

Simonds Screw Slotters



Screw Slotters are used mostly for cutting slots in screw heads, and are made with fine teeth for the reason that the heads on screws vary from $\frac{1}{16}$ inch to 1 inch in diameter. They are made with fine teeth to prevent shelling of teeth which might occur if the space between the teeth was more than the diameter of small screw heads, such as $\frac{1}{16}$ inch.

Teeth are milled to the center and brought up to a sharp cutting edge. All teeth have the same shape, about 62 degrees.

Carbon Steel Screw Slotters are not ground for clearance on the sides, but are left flat because they do not cut any deeper than $\frac{1}{16}$ inch below the bottom of the tooth. They should not be used under any circumstances as a Slitter.

High Speed Screw Slotters are ground flat on the sides.

What information should be given when sending in an order for Screw Slotters? Quantity, diameter, thickness in thousandths, size of hole, and number of teeth. Unless number of teeth is specified we would furnish the number shown in the schedule. State whether High Speed Steel or Carbon Steel is wanted. We put a standard keyway in every Screw Slotter.

High Speed Steel Screw Slotter

List Prices

Diameter	Thickness	Price	Diameter	Thickness	Price
$\frac{23}{4}$	.162	2.75	$\frac{23}{4}$	.057	1.10
$\frac{23}{4}$	.144	2.50	$\frac{23}{4}$	.057	1.10
$\frac{23}{4}$	.128	2.25	$\frac{23}{4}$	.045	1.00
$\frac{23}{4}$	.114	2.00	$\frac{23}{4}$	.040	1.00
$\frac{23}{4}$	.102	1.80	$\frac{23}{4}$	.035	1.00
$\frac{23}{4}$	.091	1.60	$\frac{23}{4}$	.032	1.00
$\frac{23}{4}$	.081	1.40	$\frac{23}{4}$	.028	1.00
$\frac{23}{4}$	.072	1.30	$\frac{23}{4}$	.025	1.00
$\frac{23}{4}$	.064	1.20	$\frac{23}{4}$	.023	1.00
			$\frac{23}{4}$	.020	1.00

Write for Discounts

Simonds Screw Slotting Cutters

For Slotting Screw Heads and Similar Work

These Cutters are not ground on the sides

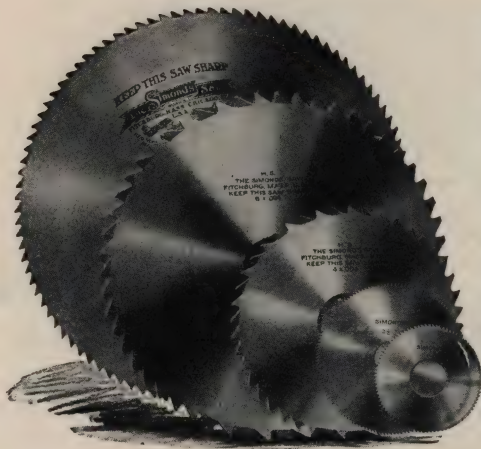
2 $\frac{3}{4}$ " standard cutters have 72 teeth
 2 $\frac{1}{2}$ " " " " 60 "
 1 $\frac{3}{4}$ " " " " 90 "

LIST PRICE

Diameter	Thickness in Decimals	Size of Hole	Price Each Carbon	Diameter	Thickness in Decimals	Size of Hole	Price Each Carbon
2 $\frac{3}{4}$ "	.182	1	\$0.90	2 $\frac{1}{4}$ "	.045	5	\$0.20
2 $\frac{3}{4}$ "	.162	1	.75	2 $\frac{1}{4}$ "	.040	5	.20
2 $\frac{3}{4}$ "	.144	1	.65	2 $\frac{1}{4}$ "	.035	5	.20
2 $\frac{3}{4}$ "	.128	3, 1	.55	2 $\frac{1}{4}$ "	.032	1, 3, 5	.20
2 $\frac{3}{4}$ "	.114	4, 1	.50	2 $\frac{1}{4}$ "	.028	1, 3, 5	.20
2 $\frac{3}{4}$ "	.102	5, 1	.45	2 $\frac{1}{4}$ "	.025	1, 3, 5	.20
2 $\frac{3}{4}$ "	.091	3, 1	.40	2 $\frac{1}{4}$ "	.023	1, 3, 5	.20
2 $\frac{3}{4}$ "	.081	4, 1	.35	2 $\frac{1}{4}$ "	.020	1, 3, 5	.20
2 $\frac{3}{4}$ "	.072	5, 1	.30	2 $\frac{1}{4}$ "	.018	1, 3, 5	.20
2 $\frac{3}{4}$ "	.064	1, 5, 3, 1	.30	2 $\frac{1}{4}$ "	.016	1, 3, 5	.20
2 $\frac{3}{4}$ "	.057	2, 5, 3, 1	.20	2 $\frac{1}{4}$ "	.014	1, 3, 5	.20
2 $\frac{3}{4}$ "	.051	3, 5, 3, 1	.20	2 $\frac{1}{4}$ "	.012	1, 3, 5	.20
2 $\frac{3}{4}$ "	.045	1, 5, 3, 1	.20	2 $\frac{1}{4}$ "	.010	1, 3, 5	.20
2 $\frac{3}{4}$ "	.040	2, 5, 3, 1	.20	2 $\frac{1}{4}$ "	.008	1, 3, 5	.20
2 $\frac{3}{4}$ "	.035	3, 5, 3, 1	.20	2 $\frac{1}{4}$ "	.006	1, 3, 5	.20
2 $\frac{3}{4}$ "	.032	1, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.064	5	.20
2 $\frac{3}{4}$ "	.028	2, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.057	5	.20
2 $\frac{3}{4}$ "	.025	3, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.051	5	.20
2 $\frac{3}{4}$ "	.023	1, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.045	5	.20
2 $\frac{3}{4}$ "	.020	2, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.040	5	.20
2 $\frac{3}{4}$ "	.018	3, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.035	5	.20
2 $\frac{3}{4}$ "	.016	1, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.032	5	.20
2 $\frac{3}{4}$ "	.014	2, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.028	5	.20
2 $\frac{3}{4}$ "	.012	3, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.025	5	.20
2 $\frac{3}{4}$ "	.010	1, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.023	5	.20
2 $\frac{3}{4}$ "	.008	2, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.020	5	.15
2 $\frac{3}{4}$ "	.006	3, 5, 3, 1	.20	1 $\frac{3}{4}$ "	.018	5	.15
2 $\frac{1}{4}$ "	.102	5	.40	1 $\frac{3}{4}$ "	.016	5	.15
2 $\frac{1}{4}$ "	.091	5	.35	1 $\frac{3}{4}$ "	.014	5	.15
2 $\frac{1}{4}$ "	.081	5	.30	1 $\frac{3}{4}$ "	.012	5	.15
2 $\frac{1}{4}$ "	.072	5	.20	1 $\frac{3}{4}$ "	.010	5	.15
2 $\frac{1}{4}$ "	.064	5	.20	1 $\frac{3}{4}$ "	.008	5	.15
2 $\frac{1}{4}$ "	.057	5	.20	1 $\frac{3}{4}$ "	.006	5	.15
2 $\frac{1}{4}$ "	.051	5	.20				

Cutters of other than standard dimensions are made to order.
 All cutters are furnished with standard keyway.

Simonds Metal Slitting Saws



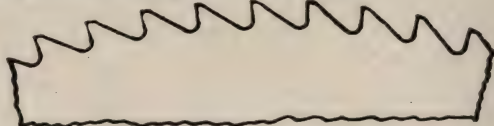
Metal Slitting Saws are used mostly for making slits of a specified size. They are also used as a universal saw in machine shops for doing various kinds of small cutting-off work, this work being on all kinds of steel. A Screw Slotter makes a shallow slot; a Slitting Saw makes a deeper slot or slit or cuts off the metal entirely.

Teeth — Number of. Metal Slitting Saws have teeth ranging about as follows:

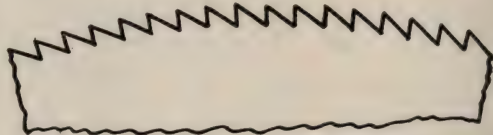
2 1/2"	— 28 teeth	6"	— 42 teeth
3"	— 32 "	7"	— 44 "
4"	— 36 "	8"	— 46 "
5"	— 40 "		

The number of teeth in many cases is definitely specified by the customer, and this may vary from the above figures.

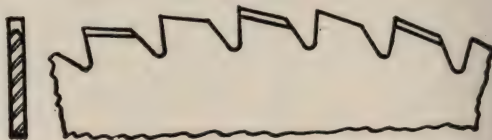
Teeth — Form of. The tooth in Metal Slitting Saws is what is known as the "square tooth" or "pitched to the center." It is backed off from 5 to 7 degrees on top for clearance. Also in other cases the back clearance is sometimes found to be at least 20 degrees, which is too much to offer sufficient backing to the cutting edge.



REGULAR BACKED OFF TOOTH



"V" TOOTH on small saws with less than 1/8" space



COPPER SLITTING TOOTH — each alternate tooth is "V" shape on top

Grinding. Slitting Saws are slightly concave ground for clearance. That is just enough to enable them to clear themselves and to prevent noticeably altering the thickness of the slitter as it wears down.

What Information Should Be Given When Sending in an Order for Metal Slitting Saws. Quantity, diameter, thickness in thousandths, size of hole, size of keyway if not standard, number of teeth, and kind of metal to be cut. Also say whether the Slitter is to be used as a slitting or as a cut-off saw, and whether it is to be used for general cutting purposes only, or for one line of work only, such as manufacturing some specified article.

Simonds Metal Slitting Saws

List Prices

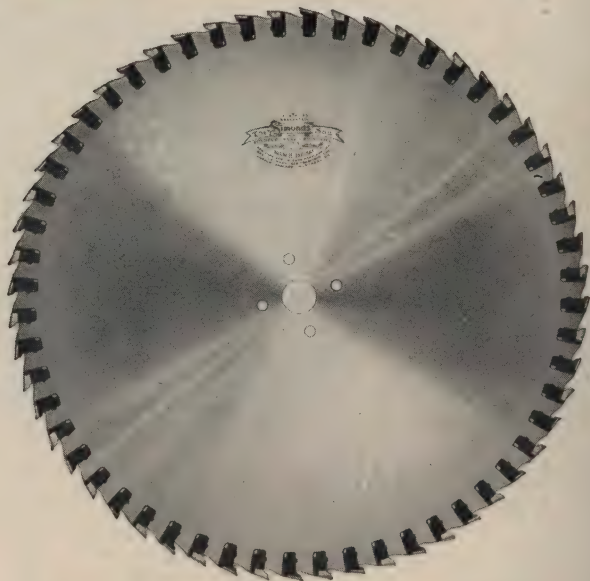
Diameter Inches	Thickness Inches	Size Hole	Carbon Steel	Semi-High Speed	High Speed Steel
2 1/2	1/32	7/8	\$1.30	For Prices on Semi-High Speed Steel Slitters advance Carbon List 25%	\$2.50
2 1/2	3/64	7/8	1.20		2.40
2 1/2	1/16	7/8	1.15		2.35
2 1/2	3/32	7/8	1.15		2.35
2 1/2	1/8	7/8	1.15		2.35
2 1/2	5/32	7/8	1.40		2.60
3	1/32	1	1.60		2.95
3	3/64	1	1.45		2.60
3	1/16	1	1.30		2.50
3	3/32	1	1.30		2.50
3	1/8	1	1.30		2.50
3	5/32	1	1.50		2.85
4	1/32	1	2.85		4.60
4	3/64	1	1.85		3.15
4	1/16	1	1.60		2.95
4	3/32	1	1.55		2.85
4	1/8	1	1.55		2.85
4	5/32	1	1.80		3.45
4	3/16	1	2.10		3.45
5	1/16	1	2.30		3.85
5	3/32	1	2.00		3.35
5	1/8	1, 1 1/4, 1 1/2	2.00		3.35
5	5/32	1	2.45		4.30
5	3/16	1	2.90		4.30
6	1/16	1	5.10		7.50
6	3/32	1	3.85		5.85
6	1/8	1, 1 1/4	3.45		5.35
6	3/16	1, 1 1/2	4.45		6.45
7	1/16	1	9.50		11.00
7	3/32	1	5.70		8.35
7	1/8	1	4.85		7.20
7	3/16	1 1/4, 2	6.50		9.05
8	1/8	1, 1 1/4	7.30		12.00
8	3/16	1 1/4, 1 1/2	8.90		12.30

Above are Standard Sizes. Prices will be quoted on Slitting Saws of different specifications on receipt of Specifications and information as to quantity wanted.

Standard Keyways for Slitting Saws

Diameter of Hole	Width of Keyway*	Depth of Keyway	Diameter of Hole	Width of Keyway	Depth of Keyway
3/8" to 9/16"	3/32	3/64	1 3/16" to 1 3/8"	3/16	3/32
5/8" to 7/8"	1/8	1/16	1 7/16" to 1 3/4"	1/4	1/8
1 5/16" to 1 1/8"	5/32	5/64	1 13/16" to 2"	5/16	5/32

Simonds Inserted Tooth Metal Saws



Here is an Inserted Tooth Metal Saw, simple in design, and built on correct mechanical lines for heavy duty. It will give excellent satisfaction. Let us know the make of your machine, size of saw wanted and the dimensions, kind and carbon of stock you desire to cut, and we will furnish you a saw that will not only cut the stock but will also cut the time ordinarily required to do it. Plate made in our own Steel Mill of high-grade carbon steel scientifically heat treated and flattened without hammering. Teeth made of High Speed Steel.

Made to fit any type of arbor driven machine.

The projection on the front holds the bottom of the tooth firmly on the plate so the tooth cannot work up or down. This makes it unnecessary to drive the wedge hard enough to disturb the tension or distort the plate in any way.

The oval teeth are slightly higher, cutting a channel in front of the square teeth which breaks the chip in three pieces, allowing it to clear and come out freely, thereby avoiding the troubles of the material becoming welded on the face of the tooth and the side of the saw.

Simonds Inserted Tooth Metal Saws

No. 000 Fine Tooth



The illustration shows actual size of tooth of the Simonds No. 000 Saw. The Simonds No. 000 is a fast cutting saw in which it is possible to put almost double the number of teeth that can be inserted in our No. 00 saw. This greater number of teeth eliminates chatter caused by the work jumping from one tooth to another in cutting the thin walls in I Beams, Channels and other material of similar construction. Consequently there is less wear on the saw and machine.

These saws are made from 10 inches in diameter with a kerf of $\frac{1}{4}$ inch and 36 teeth, to 50 inches in diameter with kerf of $\frac{1}{2}$ or $\frac{7}{16}$ inches, holding 180 teeth.

It is a saw made along the general lines of our other well known Inserted Tooth Metal Saw, containing the same grade of High Speed Steel cutting points, but with the teeth spaced much closer. The illustration at the upper left of this page shows the design and method of tooth arrangement. Through this method, the teeth, although closer together, are firmly fastened into the plate.

Diam. Inches	Thick- ness of Plate	Kerf	Standard No. of Teeth	List Price	Diam. Inches	Thick- ness of Plate	Kerf	Standard No. of Teeth	List Price
10	$\frac{1}{8}$	$\frac{1}{4}$	36	\$100.00	32	$\frac{1}{4}$	$\frac{1}{8}$	114	310.00
12	$\frac{1}{8}$	$\frac{1}{4}$	44	110.00	32	$\frac{1}{8}$	$\frac{1}{8}$	114	335.00
14	$\frac{1}{8}$	$\frac{1}{4}$	50	125.00	32	$\frac{3}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	114	360.00
16	$\frac{1}{8}$	$\frac{1}{4}$	58	140.00	34	$\frac{1}{4}$	$\frac{1}{8}$	122	335.00
18	$\frac{1}{8}$	$\frac{1}{4}$	76	170.00	34	$\frac{1}{8}$	$\frac{1}{8}$	122	360.00
20	$\frac{1}{8}$	$\frac{1}{4}$	84	185.00	34	$\frac{3}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	122	390.00
20	$\frac{1}{4}$	$\frac{1}{8}$	84	195.00	36	$\frac{1}{4}$	$\frac{1}{8}$	130	360.00
20	$\frac{1}{8}$	$\frac{3}{8}$	84	205.00	36	$\frac{1}{8}$	$\frac{3}{8}$	130	390.00
22	$\frac{1}{8}$	$\frac{1}{4}$	92	200.00	36	$\frac{3}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	130	420.00
22	$\frac{1}{4}$	$\frac{1}{8}$	92	210.00	38	$\frac{1}{4}$	$\frac{3}{8}$	136	420.00
22	$\frac{1}{8}$	$\frac{3}{8}$	92	220.00	38	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	136	450.00
24	$\frac{1}{8}$	$\frac{1}{4}$	100	220.00	40	$\frac{1}{4}$	$\frac{3}{8}$	144	450.00
24	$\frac{1}{4}$	$\frac{1}{8}$	100	230.00	40	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	144	480.00
24	$\frac{1}{8}$	$\frac{3}{8}$	100	240.00	42	$\frac{1}{4}$	$\frac{3}{8}$	150	480.00
26	$\frac{1}{8}$	$\frac{1}{4}$	108	240.00	42	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	150	515.00
26	$\frac{1}{4}$	$\frac{1}{8}$	108	250.00	44	$\frac{1}{4}$	$\frac{3}{8}$	158	515.00
26	$\frac{1}{8}$	$\frac{3}{8}$	108	265.00	44	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	158	550.00
26	$\frac{1}{4}$	$\frac{3}{8}$	108	285.00	46	$\frac{1}{4}$	$\frac{3}{8}$	166	550.00
28	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	116	260.00	46	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	166	585.00
28	$\frac{1}{4}$	$\frac{1}{8}$	116	270.00	48	$\frac{1}{4}$	$\frac{3}{8}$	172	585.00
28	$\frac{1}{8}$	$\frac{3}{8}$	116	285.00	48	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	172	620.00
28	$\frac{1}{4}$	$\frac{3}{8}$	116	310.00	50	$\frac{1}{4}$	$\frac{3}{8}$	180	620.00
30	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	124	290.00	50	$\frac{1}{8}$	$\frac{1}{2}$ or $\frac{1}{4}$	180	655.00
30	$\frac{1}{4}$	$\frac{1}{8}$	124	310.00					
30	$\frac{1}{8}$	$\frac{3}{8}$	124	335.00					

JACOBS CHUCKS



Careful selection of Drill Chucks with reference to the use to which they are being placed will result in a great saving to the user—not only in the item of chucks, but in the larger one of Drilling Machine maintenance and Drill breakage. The recommendations contained on this page are the results of the combined experience of the Drill, Drilling Machine and Chuck Manufacturer.

JACOBS IMPROVED DRILL CHUCKS

For general drilling purposes on: Drill Presses, Lathes, Tapping Machines, Radial Drills, Wall Drills, Blacksmith Drills.

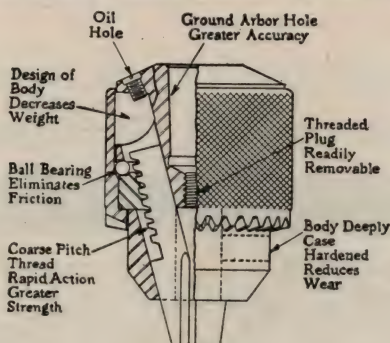
Model	Capacity	List Price
7	$\frac{1}{4}$ inch	\$4.50
2	$\frac{1}{4}$ inch	5.50
32	$\frac{3}{8}$ inch	5.50
3	$\frac{1}{2}$ inch	9.00
4	$\frac{3}{4}$ inch	15.00
5	1 inch	20.00

JACOBS IMPROVED LIGHT WEIGHT CHUCKS

Recommended on the following: Sensitive Drills, Jewelers' Drills, Precision Lathes, Multiple Drills, Drill Heads, Tapping Devices.

MODEL	CAPACITY	LIST PRICE
0	$\frac{1}{8}$ inch	\$5.50
1	inch	4.50
1A	$\frac{1}{4}$ inch	4.50
30	inch	5.50
2A	$\frac{3}{8}$ inch	5.50
6A	$\frac{1}{2}$ inch	9.00

JACOBS CHUCKS (CONT.)



THE JACOBS SUPER-CHUCK.

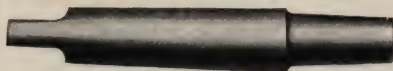
Recommended for general drilling purposes where hard and constant usage demand the greatest possible efficiency from a Drill Chuck. On production drilling it will outwear any chuck ever made. The Gripping Power of the SUPER-CHUCK is such that only a slight pressure is required on the key for the heaviest drilling. For ordinary drilling and tool work the Chuck may be tightened by hand without using the key.

Model	Capacity	List Price
8	$\frac{1}{4}$ inch	\$7.50
9	$\frac{3}{8}$ inch	8.00
11	$\frac{3}{8}$ inch	9.00
12	$\frac{1}{2}$ inch	12.00
14	$\frac{1}{2}$ inch	12.00
16	$\frac{5}{8}$ inch	15.00
18	$\frac{3}{4}$ inch	18.00
20	1 inch	25.00

JACOBS CHUCKS FOR PORTABLE ELECTRIC DRILLS.

As Portable Electric Drills have been designed for both light and heavy duty drilling the specifications of the manufacturer should be followed wherever possible. Jacobs Chucks are standard equipment on nearly every portable tool made in America and many of those made abroad. Chucks can be furnished with threaded arbor holes to fit any spindle without additional charge. When ordering Chucks just specify the capacity and thread required or furnish the manufacturer's drill model number.

ARBORS FOR JACOBS CHUCKS.



Arbors are regularly furnished to fit all standard makes of machine tools. Being accurately ground on centers, Jacobs Arbors insure an accurate running Chuck.

PRICE LIST OF ARBORS TO FIT ANY MODEL OF THE JACOBS CHUCK.

Model	Price
No. 1 Morse	\$.80
No. 2 Morse	.80
No. 3 Morse	1.20
No. 4 Morse	2.00
No. 5 Morse	2.50
$\frac{1}{2}$ inch Straight Shank	.75
$\frac{3}{4}$ inch Straight Shank	.75



NATIONAL TWIST DRILL & TOOL COMPANY

TAPER SHANK TWIST DRILLS



Carbon Steel No. 93

High Speed Steel No. 200

Code Word: Carbon Steel, Saber High Speed Steel, Gable

Diameter Inches	PRICE EACH		Length Over All Inches	Length Twist Inches	Shank Taper
	Carbon Steel	High Speed Steel			
$\frac{1}{16}$	\$0.45	\$0.90	$4\frac{1}{8}$	$1\frac{1}{4}$	No. 1
$\frac{5}{64}$	.45	.90	$4\frac{1}{8}$	$1\frac{3}{8}$	
$\frac{3}{32}$	.45	.90	$4\frac{1}{8}$	$1\frac{1}{2}$	
$\frac{7}{64}$	.45	.90	$5\frac{1}{8}$	$1\frac{5}{8}$	
$\frac{1}{8}$	.45	.90	$5\frac{3}{8}$	$1\frac{15}{8}$	
$\frac{9}{64}$	.45	.90	$5\frac{5}{8}$	$2\frac{3}{16}$	
$\frac{5}{32}$	.45	.90	$5\frac{5}{8}$	$2\frac{1}{16}$	
$\frac{11}{64}$	.50	.90	6	$2\frac{9}{16}$	
$\frac{3}{16}$	.50	.90	6	$2\frac{1}{8}$	
$\frac{13}{64}$	.55	1.00	$6\frac{1}{4}$	$2\frac{1}{16}$	
$\frac{7}{32}$	.55	1.00	$6\frac{1}{4}$	$2\frac{1}{16}$	
$\frac{15}{64}$	.60	1.10	$6\frac{3}{8}$	$2\frac{1}{16}$	
$\frac{1}{4}$	.60	1.10	$6\frac{3}{8}$	$2\frac{1}{16}$	
$\frac{17}{64}$	.65	1.20	$6\frac{1}{2}$	$3\frac{1}{16}$	
$\frac{9}{32}$	.65	1.20	$6\frac{1}{2}$	$3\frac{1}{16}$	
$\frac{19}{64}$	.70	1.30	$6\frac{5}{8}$	$3\frac{3}{16}$	
$\frac{5}{16}$	.70	1.30	$6\frac{5}{8}$	$3\frac{3}{16}$	
$\frac{21}{64}$	.75	1.40	$6\frac{3}{4}$	$3\frac{5}{16}$	
$\frac{11}{32}$	.75	1.40	$6\frac{3}{4}$	$3\frac{5}{16}$	
$\frac{23}{64}$	.80	1.50	7	$3\frac{9}{16}$	
$\frac{3}{8}$	.80	1.50	7	$3\frac{9}{16}$	
$\frac{25}{64}$	.90	1.65	7	$3\frac{11}{16}$	
$\frac{13}{32}$	.90	1.65	7	$3\frac{11}{16}$	
$\frac{27}{64}$	1.00	1.75	$7\frac{1}{4}$	$3\frac{15}{16}$	
$\frac{7}{16}$	1.00	1.75	$7\frac{1}{4}$	$3\frac{15}{16}$	
$\frac{29}{64}$	1.10	1.90	$7\frac{1}{2}$	$4\frac{3}{16}$	
$\frac{15}{32}$	1.10	1.90	$7\frac{1}{2}$	$4\frac{1}{16}$	
$\frac{31}{64}$	1.20	2.00	$7\frac{3}{4}$	$4\frac{7}{16}$	
$\frac{1}{2}$	1.20	2.00	$7\frac{3}{4}$	$4\frac{7}{16}$	
$\frac{33}{64}$	1.30	2.15	8	$4\frac{11}{16}$	
$\frac{17}{32}$	1.30	2.15	8	$4\frac{11}{16}$	
$\frac{35}{64}$	1.40	2.25	$8\frac{1}{4}$	$4\frac{15}{16}$	
$\frac{9}{16}$	1.40	2.25	$8\frac{1}{4}$	$4\frac{15}{16}$	

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

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NATIONAL TWIST DRILL & TOOL COMPANY



TAPER SHANK TWIST DRILLS



Carbon Steel No. 93

High Speed Steel No. 200

Code Word: Carbon Steel, Saber High Speed Steel, Gable

Diameter Inches	PRICE EACH		Length Over All Inches	Length Twist Inches	Shank Taper
	Carbon Steel	High Speed Steel			
$\frac{37}{64}$	\$1.50	\$2.40	$8\frac{1}{2}$	$4\frac{5}{8}$	No. 2
$\frac{19}{32}$	1.50	2.40	$8\frac{1}{2}$	$4\frac{5}{8}$	
$\frac{39}{64}$	1.60	2.50	$8\frac{3}{4}$	$4\frac{7}{8}$	
$\frac{5}{8}$	1.60	2.50	$8\frac{3}{4}$	$4\frac{7}{8}$	
$\frac{41}{64}$	1.70	2.75	9	$5\frac{1}{8}$	
$\frac{21}{32}$	1.70	2.75	9	$5\frac{1}{8}$	
$\frac{43}{64}$	1.80	3.00	$9\frac{1}{4}$	$5\frac{3}{8}$	
$\frac{11}{16}$	1.80	3.00	$9\frac{1}{4}$	$5\frac{3}{8}$	
$\frac{45}{64}$	1.90	3.25	$9\frac{1}{2}$	$5\frac{5}{8}$	
$\frac{23}{32}$	1.90	3.25	$9\frac{1}{2}$	$5\frac{5}{8}$	
$\frac{47}{64}$	2.00	3.50	$9\frac{3}{4}$	$5\frac{7}{8}$	
$\frac{3}{4}$	2.00	3.50	$9\frac{3}{4}$	$5\frac{7}{8}$	
$\frac{49}{64}$	2.10	3.75	$9\frac{7}{8}$	6	
$\frac{25}{32}$	2.10	3.75	$9\frac{7}{8}$	6	
$\frac{51}{64}$	2.20	4.00	10	$6\frac{1}{8}$	
$\frac{13}{16}$	2.20	4.00	10	$6\frac{1}{8}$	
$\frac{53}{64}$	2.40	4.40	$10\frac{1}{4}$	$6\frac{3}{8}$	
$\frac{27}{32}$	2.40	4.40	$10\frac{1}{4}$	$6\frac{3}{8}$	
$\frac{55}{64}$	2.60	4.75	$10\frac{1}{2}$	$6\frac{5}{8}$	
$\frac{7}{8}$	2.60	4.75	$10\frac{1}{2}$	$6\frac{5}{8}$	
$\frac{57}{64}$	2.80	5.15	$10\frac{5}{8}$	$6\frac{3}{4}$	
$\frac{29}{32}$	2.80	5.15	$10\frac{5}{8}$	$6\frac{3}{4}$	
$\frac{59}{64}$	3.00	5.50	$10\frac{3}{4}$	$6\frac{1}{8}$	No. 3
$\frac{15}{16}$	3.00	5.50	$10\frac{3}{4}$	$6\frac{1}{8}$	
$\frac{61}{64}$	3.25	5.90	$10\frac{7}{8}$	$6\frac{1}{4}$	
$\frac{31}{32}$	3.25	5.90	$10\frac{7}{8}$	$6\frac{1}{4}$	
$\frac{63}{64}$	3.50	6.25	11	$6\frac{3}{8}$	
1	3.50	6.25	11	$6\frac{3}{8}$	
$1\frac{1}{64}$	3.75	6.75	$11\frac{1}{8}$	$6\frac{1}{2}$	
$1\frac{1}{32}$	3.75	6.75	$11\frac{1}{8}$	$6\frac{1}{2}$	
$1\frac{3}{64}$	4.00	7.25	$11\frac{1}{4}$	$6\frac{5}{8}$	
$1\frac{1}{16}$	4.00	7.25	$11\frac{1}{4}$	$6\frac{5}{8}$	

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

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NATIONAL TWIST DRILL & TOOL COMPANY

TAPER SHANK TWIST DRILLS



Carbon Steel No. 93

High Speed Steel No. 200

Code Word: Carbon Steel, Saber High Speed Steel, Gable

Diameter Inches	PRICE EACH		Length Over All Inches	Length Twist Inches	Shank Taper
	Carbon Steel	High Speed Steel			
$1\frac{5}{64}$	\$4.25	\$7.75	11 $\frac{1}{2}$	6 $\frac{7}{8}$	No. 3
$1\frac{3}{32}$	4.25	7.75	11 $\frac{1}{2}$	6 $\frac{7}{8}$	
$1\frac{7}{64}$	4.50	8.25	11 $\frac{3}{4}$	7 $\frac{1}{8}$	
$1\frac{1}{8}$	4.50	8.25	11 $\frac{3}{4}$	7 $\frac{1}{8}$	
$1\frac{9}{64}$	4.75	8.90	11 $\frac{7}{8}$	7 $\frac{1}{4}$	
$1\frac{5}{32}$	4.75	8.90	11 $\frac{7}{8}$	7 $\frac{1}{4}$	
$1\frac{11}{64}$	5.00	9.50	12	7 $\frac{3}{8}$	
$1\frac{3}{16}$	5.00	9.50	12	7 $\frac{3}{8}$	
$1\frac{13}{64}$	5.25	10.15	12 $\frac{1}{8}$	7 $\frac{1}{2}$	
$1\frac{7}{32}$	5.25	10.15	12 $\frac{1}{8}$	7 $\frac{1}{2}$	
$1\frac{15}{64}$	5.50	10.75	12 $\frac{1}{2}$	7 $\frac{7}{8}$	
$1\frac{1}{4}$	5.50	10.75	12 $\frac{1}{2}$	7 $\frac{7}{8}$	
$1\frac{17}{64}$	5.75	11.50	14 $\frac{1}{8}$	8 $\frac{1}{2}$	No. 4
$1\frac{9}{32}$	5.75	11.50	14 $\frac{1}{8}$	8 $\frac{1}{2}$	
$1\frac{19}{64}$	6.00	12.25	14 $\frac{1}{4}$	8 $\frac{5}{8}$	
$1\frac{5}{16}$	6.00	12.25	14 $\frac{1}{4}$	8 $\frac{5}{8}$	
$1\frac{21}{64}$	6.25	13.00	14 $\frac{3}{8}$	8 $\frac{3}{4}$	
$1\frac{11}{32}$	6.25	13.00	14 $\frac{3}{8}$	8 $\frac{3}{4}$	
$1\frac{23}{64}$	6.50	13.75	14 $\frac{1}{2}$	8 $\frac{7}{8}$	
$1\frac{3}{8}$	6.50	13.75	14 $\frac{1}{2}$	8 $\frac{7}{8}$	
$1\frac{25}{64}$	7.00	14.65	14 $\frac{5}{8}$	9	
$1\frac{13}{32}$	7.00	14.65	14 $\frac{5}{8}$	9	
$1\frac{27}{64}$	7.50	15.50	14 $\frac{3}{4}$	9 $\frac{1}{8}$	
$1\frac{7}{16}$	7.50	15.50	14 $\frac{3}{4}$	9 $\frac{1}{8}$	
$1\frac{29}{64}$	8.00	16.40	14 $\frac{7}{8}$	9 $\frac{1}{4}$	
$1\frac{15}{32}$	8.00	16.40	14 $\frac{7}{8}$	9 $\frac{1}{4}$	
$1\frac{31}{64}$	8.50	17.25	15	9 $\frac{3}{8}$	
$1\frac{1}{2}$	8.50	17.25	15	9 $\frac{3}{8}$	
$1\frac{33}{64}$	9.00	18.15	15	9 $\frac{3}{8}$	

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

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NATIONAL TWIST DRILL & TOOL COMPANY



TAPER SHANK TWIST DRILLS



Carbon Steel No. 93

High Speed Steel No. 200

Code Word: Carbon Steel, Saber High Speed Steel, Gable

Diameter Inches	PRICE EACH		Length Over All Inches	Length Twist Inches	Shank Taper
	Carbon Steel	High Speed Steel			
1 $\frac{1}{32}$	\$9.00	\$18.15	15	9 $\frac{3}{8}$	No. 4
1 $\frac{3}{64}$	9.50	19.00	15 $\frac{1}{4}$	9 $\frac{3}{8}$	
1 $\frac{9}{16}$	9.50	19.00	15 $\frac{1}{4}$	9 $\frac{3}{8}$	
1 $\frac{11}{64}$	10.00	20.00	15 $\frac{1}{4}$	9 $\frac{3}{8}$	
1 $\frac{13}{32}$	10.00	20.00	15 $\frac{1}{4}$	9 $\frac{3}{8}$	
1 $\frac{33}{64}$	10.50	21.00	15 $\frac{1}{2}$	9 $\frac{7}{8}$	
1 $\frac{7}{8}$	10.50	21.00	15 $\frac{1}{2}$	9 $\frac{7}{8}$	
1 $\frac{41}{64}$	11.00	22.00	15 $\frac{1}{2}$	9 $\frac{7}{8}$	
1 $\frac{21}{32}$	11.00	22.00	15 $\frac{1}{2}$	9 $\frac{7}{8}$	
1 $\frac{43}{64}$	11.50	23.00	15 $\frac{3}{4}$	10 $\frac{1}{8}$	
1 $\frac{11}{16}$	11.50	23.00	15 $\frac{3}{4}$	10 $\frac{1}{8}$	
1 $\frac{45}{64}$	12.00	24.00	15 $\frac{3}{4}$	10 $\frac{1}{8}$	
1 $\frac{23}{32}$	12.00	24.00	15 $\frac{3}{4}$	10 $\frac{1}{8}$	
1 $\frac{47}{64}$	12.50	25.00	16	10 $\frac{3}{8}$	
1 $\frac{3}{4}$	12.50	25.00	16	10 $\frac{3}{8}$	
1 $\frac{49}{64}$	13.25	26.25	16	10 $\frac{3}{8}$	
1 $\frac{25}{32}$	13.25	26.25	16	10 $\frac{3}{8}$	
1 $\frac{51}{64}$	14.00	27.50	16 $\frac{1}{4}$	10 $\frac{1}{2}$	
1 $\frac{13}{16}$	14.00	27.50	16 $\frac{1}{4}$	10 $\frac{1}{2}$	
1 $\frac{53}{64}$	14.75	28.75	16 $\frac{1}{4}$	10 $\frac{5}{8}$	
1 $\frac{27}{32}$	14.75	28.75	16 $\frac{1}{4}$	10 $\frac{5}{8}$	
1 $\frac{55}{64}$	15.50	30.00	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{7}{8}$	15.50	30.00	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{57}{64}$	16.25	31.25	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{29}{32}$	16.25	31.25	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{59}{64}$	17.00	32.50	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{15}{16}$	17.00	32.50	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{61}{64}$	17.75	33.75	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{31}{32}$	17.75	33.75	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
1 $\frac{63}{64}$	18.50	35.00	16 $\frac{1}{2}$	10 $\frac{3}{4}$	
2	18.50	35.00	16 $\frac{1}{2}$	10 $\frac{3}{4}$	

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

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NATIONAL TWIST DRILL & TOOL COMPANY

STRAIGHT SHANK TWIST DRILLS

TAPER SHANK LENGTHS



Carbon Steel No. 94

High Speed Steel No. 201

Code Word: Carbon Steel, Sage High Speed Steel, Gad

Diameter Inches	PRICE EACH		Length Over All Inches	Length Twist Inches
	Carbon Steel	High Speed Steel		
$\frac{1}{16}$	\$0.45	\$0.90	3	1 $\frac{1}{4}$
$\frac{5}{64}$	.45	.90	3 $\frac{3}{4}$	1 $\frac{3}{8}$
$\frac{3}{32}$	.45	.90	4 $\frac{1}{4}$	1 $\frac{5}{8}$
$\frac{7}{64}$	.45	.90	4 $\frac{5}{8}$	2 $\frac{1}{4}$
$\frac{1}{8}$	.45	.90	5 $\frac{1}{8}$	2 $\frac{1}{2}$
$\frac{9}{64}$	.45	.90	5 $\frac{1}{4}$	2 $\frac{3}{4}$
$\frac{5}{32}$	.45	.90	5 $\frac{3}{8}$	3
$\frac{11}{64}$	.50	.90	5 $\frac{1}{2}$	3 $\frac{1}{4}$
$\frac{3}{16}$	.50	.90	5 $\frac{3}{4}$	3 $\frac{1}{2}$
$\frac{13}{64}$	.55	1.00	5 $\frac{7}{8}$	3 $\frac{3}{4}$
$\frac{7}{32}$	.55	1.00	6	4
$\frac{15}{64}$	.60	1.10	6 $\frac{1}{8}$	4
$\frac{1}{4}$	.60	1.10	6 $\frac{1}{4}$	4
$\frac{17}{64}$	.65	1.20	6 $\frac{3}{4}$	4
$\frac{9}{32}$	.65	1.20	6 $\frac{1}{2}$	4
$\frac{19}{64}$	.70	1.30	6 $\frac{3}{8}$	4 $\frac{1}{8}$
$\frac{5}{16}$	.70	1.30	6 $\frac{3}{4}$	4 $\frac{1}{8}$
$\frac{21}{64}$	.75	1.40	6 $\frac{1}{2}$	4 $\frac{1}{8}$
$\frac{11}{32}$	.75	1.40	6 $\frac{1}{2}$	4 $\frac{1}{8}$
$\frac{23}{64}$	.80	1.50	6 $\frac{3}{4}$	4 $\frac{1}{4}$
$\frac{3}{8}$	.80	1.50	6 $\frac{3}{4}$	4 $\frac{1}{4}$
$\frac{25}{64}$	.90	1.65	7	4 $\frac{3}{8}$
$\frac{13}{32}$	.90	1.65	7	4 $\frac{3}{8}$
$\frac{27}{64}$	1.00	1.75	7 $\frac{1}{4}$	4 $\frac{5}{8}$
$\frac{7}{16}$	1.00	1.75	7 $\frac{1}{4}$	4 $\frac{5}{8}$
$\frac{29}{64}$	1.10	1.90	7 $\frac{1}{2}$	4 $\frac{7}{8}$
$\frac{15}{32}$	1.10	1.90	7 $\frac{1}{2}$	4 $\frac{7}{8}$
$\frac{31}{64}$	1.20	2.00	7 $\frac{3}{4}$	5
$\frac{1}{2}$	1.20	2.00	7 $\frac{3}{4}$	5
$\frac{33}{64}$	1.30	2.15	8	5 $\frac{1}{4}$
$\frac{17}{32}$	1.30	2.15	8	5 $\frac{1}{4}$

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

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NATIONAL TWIST DRILL & TOOL COMPANY

STRAIGHT SHANK TWIST DRILLS

TAPER SHANK LENGTHS

**Carbon Steel No. 94****High Speed Steel No. 201**

Code Word: Carbon Steel, Sage High Speed Steel, Gad

Diameter Inches	PRICE EACH		Length Over All Inches	Length Twist Inches
	Carbon Steel	High Speed Steel		
$\frac{35}{64}$	\$1.40	\$2.25	$8\frac{1}{4}$	$5\frac{3}{8}$
$\frac{9}{16}$	1.40	2.25	$8\frac{1}{4}$	$5\frac{3}{8}$
$\frac{37}{64}$	1.50	2.40	$8\frac{1}{2}$	$5\frac{5}{8}$
$\frac{19}{32}$	1.50	2.40	$8\frac{1}{2}$	$5\frac{5}{8}$
$\frac{39}{64}$	1.60	2.50	$8\frac{3}{4}$	$5\frac{3}{4}$
$\frac{5}{8}$	1.60	2.50	$8\frac{3}{4}$	$5\frac{3}{4}$
$\frac{41}{64}$	1.70	2.75	9	$5\frac{7}{8}$
$\frac{21}{32}$	1.70	2.75	9	$5\frac{7}{8}$
$\frac{43}{64}$	1.80	3.00	$9\frac{1}{4}$	6
$\frac{11}{16}$	1.80	3.00	$9\frac{1}{4}$	6
$\frac{45}{64}$	1.90	3.25	$9\frac{1}{2}$	$6\frac{3}{16}$
$\frac{23}{32}$	1.90	3.25	$9\frac{1}{2}$	$6\frac{3}{16}$
$\frac{47}{64}$	2.00	3.50	$9\frac{3}{4}$	$6\frac{3}{8}$
$\frac{3}{4}$	2.00	3.50	$9\frac{3}{4}$	$6\frac{3}{8}$
$\frac{49}{64}$	2.10	3.75	$9\frac{7}{8}$	$6\frac{1}{2}$
$\frac{25}{32}$	2.10	3.75	$9\frac{7}{8}$	$6\frac{1}{2}$
$\frac{51}{64}$	2.20	4.00	10	$6\frac{5}{8}$
$\frac{13}{16}$	2.20	4.00	10	$6\frac{5}{8}$
$\frac{53}{64}$	2.40	4.40	$10\frac{1}{4}$	$6\frac{3}{4}$
$\frac{27}{32}$	2.40	4.40	$10\frac{1}{4}$	$6\frac{3}{4}$
$\frac{55}{64}$	2.60	4.75	$10\frac{1}{2}$	7
$\frac{7}{8}$	2.60	4.75	$10\frac{1}{2}$	7
$\frac{57}{64}$	2.80	5.15	$10\frac{5}{8}$	7
$\frac{29}{32}$	2.80	5.15	$10\frac{5}{8}$	7
$\frac{59}{64}$	3.00	5.50	$10\frac{3}{4}$	7
$\frac{15}{16}$	3.00	5.50	$10\frac{3}{4}$	7
$\frac{61}{64}$	3.25	5.90	$10\frac{7}{8}$	$7\frac{1}{8}$
$\frac{31}{32}$	3.25	5.90	$10\frac{7}{8}$	$7\frac{1}{8}$
$\frac{63}{64}$	3.50	6.25	11	$7\frac{3}{16}$
1	3.50	6.25	11	$7\frac{3}{16}$

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

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NATIONAL TWIST DRILL & TOOL COMPANY

STRAIGHT SHANK TWIST DRILLS JOBBER'S OR SHORT LENGTHS

**Carbon Steel No. 95****High Speed Steel No. 206**

Code Word: Carbon Steel, Salute High Speed Steel, Gallop

Diameter Inches	PRICE PER DOZEN		Length Over All Inches	Length Twist Inches
	Carbon Steel	High Speed Steel		
$\frac{1}{32}$	\$1.50	\$5.70	$1\frac{1}{2}$	$\frac{5}{8}$
$\frac{3}{64}$	1.55	5.70	$1\frac{3}{4}$	$\frac{7}{8}$
$\frac{1}{16}$	1.60	5.70	$2\frac{1}{2}$	$1\frac{1}{4}$
$\frac{5}{64}$	1.65	5.70	$2\frac{5}{8}$	$1\frac{3}{8}$
$\frac{3}{32}$	1.70	5.70	$2\frac{3}{4}$	$1\frac{1}{2}$
$\frac{7}{64}$	1.75	5.90	$2\frac{7}{8}$	$1\frac{5}{8}$
$\frac{1}{8}$	1.80	5.90	3	$1\frac{3}{4}$
$\frac{9}{64}$	1.85	6.10	$3\frac{1}{8}$	$1\frac{7}{8}$
$\frac{5}{32}$	1.90	6.10	$3\frac{1}{4}$	2
$\frac{11}{64}$	2.00	6.30	$3\frac{3}{8}$	$2\frac{1}{8}$
$\frac{3}{16}$	2.25	6.30	$3\frac{1}{2}$	$2\frac{1}{4}$
$\frac{13}{64}$	2.50	7.00	$3\frac{5}{8}$	$2\frac{3}{8}$
$\frac{7}{32}$	2.75	7.00	$3\frac{3}{4}$	$2\frac{1}{2}$
$\frac{15}{64}$	3.00	7.35	$3\frac{7}{8}$	$2\frac{5}{8}$
$\frac{1}{4}$	3.25	7.35	4	$2\frac{3}{4}$
$\frac{17}{64}$	3.50	9.10	$4\frac{1}{8}$	$2\frac{7}{8}$
$\frac{9}{32}$	3.80	9.10	$4\frac{1}{4}$	$2\frac{31}{32}$
$\frac{19}{64}$	4.00	10.50	$4\frac{3}{8}$	$3\frac{3}{32}$
$\frac{5}{16}$	4.35	10.50	$4\frac{1}{2}$	$3\frac{1}{16}$
$\frac{21}{64}$	4.70	12.00	$4\frac{5}{8}$	$3\frac{5}{16}$
$\frac{11}{32}$	5.05	12.00	$4\frac{3}{4}$	$3\frac{11}{32}$
$\frac{23}{64}$	5.50	13.50	$4\frac{7}{8}$	$3\frac{17}{32}$
$\frac{3}{8}$	6.00	13.50	5	$3\frac{5}{8}$
$\frac{25}{64}$	6.50	15.00	$5\frac{1}{8}$	$3\frac{3}{4}$
$\frac{13}{32}$	7.00	15.00	$5\frac{1}{4}$	$3\frac{27}{32}$
$\frac{27}{64}$	7.75	17.00	$5\frac{3}{8}$	$3\frac{11}{16}$
$\frac{7}{16}$	8.50	17.00	$5\frac{1}{2}$	$4\frac{1}{16}$
$\frac{29}{64}$	9.25	18.75	$5\frac{5}{8}$	$4\frac{3}{16}$
$\frac{15}{32}$	10.00	18.75	$5\frac{3}{4}$	$4\frac{13}{32}$
$\frac{31}{64}$	11.00	20.00	$5\frac{7}{8}$	$4\frac{17}{32}$
$\frac{1}{2}$	12.00	20.00	6	$4\frac{1}{2}$

Sizes $\frac{1}{16}$ to $\frac{1}{8}$ inch inclusive, packed one dozen to envelope; $\frac{11}{32}$ to $\frac{1}{2}$ inch inclusive, half dozen in envelope. Broken packages 20% extra.

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

NATIONAL TWIST DRILL & TOOL COMPANY



STRAIGHT SHANK TWIST DRILLS

LETTER SIZES



Carbon Steel No. 96

High Speed Steel No. 207

Code Word: Carbon Steel, Samlet High Speed Steel, Galore

Size by Gauge	Decimal Equivalent	PRICE PER DOZEN		Length Over All Inches	Length Twist Inches
		Carbon Steel	High Speed Steel		
A	.234	\$3.00	\$7.35	3 $\frac{1}{16}$	2 $\frac{1}{8}$
B	.238	3.05	7.35	3 $\frac{1}{16}$	2 $\frac{1}{8}$
C	.242	3.10	7.35	3 $\frac{1}{16}$	2 $\frac{1}{8}$
D	.246	3.15	7.35	3 $\frac{1}{16}$	2 $\frac{1}{8}$
E	.250	3.25	7.35	3 $\frac{1}{16}$	2 $\frac{9}{16}$
F	.257	3.35	9.10	4 $\frac{1}{4}$	3
G	.261	3.45	9.10	4 $\frac{1}{4}$	3
H	.266	3.55	9.10	4 $\frac{1}{4}$	3
I	.272	3.65	9.10	4 $\frac{1}{4}$	3
J	.277	3.70	9.10	4 $\frac{1}{4}$	3
K	.281	3.80	9.10	4 $\frac{1}{4}$	3
L	.290	3.90	10.50	4 $\frac{1}{4}$	2 $\frac{3}{4}$
M	.295	4.00	10.50	4 $\frac{1}{4}$	2 $\frac{3}{4}$
N	.302	4.25	10.50	4 $\frac{1}{4}$	2 $\frac{1}{2}$
O	.316	4.40	10.50	4 $\frac{1}{4}$	2 $\frac{1}{2}$
P	.323	4.60	12.00	4 $\frac{5}{8}$	3 $\frac{5}{16}$
Q	.332	4.75	12.00	4 $\frac{3}{4}$	3 $\frac{5}{16}$
R	.339	5.00	12.00	4 $\frac{3}{4}$	3 $\frac{7}{16}$
S	.348	5.15	13.50	4 $\frac{7}{8}$	3 $\frac{7}{16}$
T	.358	5.30	13.50	4 $\frac{7}{8}$	3 $\frac{1}{2}$
U	.368	5.50	13.50	5	3 $\frac{1}{2}$
V	.377	6.00	13.50	5	3 $\frac{5}{8}$
W	.386	6.50	15.00	5 $\frac{1}{8}$	3 $\frac{5}{8}$
X	.397	6.75	15.00	5 $\frac{1}{8}$	3 $\frac{3}{4}$
Y	.404	7.00	15.00	5 $\frac{1}{4}$	3 $\frac{3}{4}$
Z	.413	7.25	17.00	5 $\frac{3}{8}$	3 $\frac{3}{4}$

Sizes A to N inclusive packed one dozen to envelope; sizes O to Z inclusive one-half dozen to envelope. Broken packages 20% extra.

SPECIFY ALL TOOLS BY OUR LIST NUMBERS



NATIONAL TWIST DRILL & TOOL COMPANY

STRAIGHT SHANK WIRE DRILLS



Carbon Steel No. 97

High Speed Steel No. 208

Code Word: Carbon Steel, Sample High Speed Steel, Gamble

Number by Gauge	Decimal of 1 Inch	PRICE PER DOZEN		Length Over All Inches	Length Twist Inches
		Carbon Steel	High Speed Steel		
1	.2280	\$2.75	\$7.00	4	2 $\frac{31}{32}$
2	.2210	2.75	7.00	3 $\frac{15}{16}$	2 $\frac{5}{8}$
3	.2130	2.75	7.00	3 $\frac{13}{16}$	2 $\frac{5}{16}$
4	.2090	2.75	7.00	3 $\frac{1}{8}$	2 $\frac{19}{32}$
5	.2055	2.75	7.00	3 $\frac{13}{16}$	2 $\frac{1}{16}$
6	.2040	2.50	7.00	3 $\frac{13}{16}$	2 $\frac{11}{32}$
7	.2010	2.50	7.00	3 $\frac{1}{4}$	2 $\frac{1}{2}$
8	.1990	2.50	7.00	3 $\frac{11}{16}$	2 $\frac{33}{32}$
9	.1960	2.50	7.00	3 $\frac{11}{16}$	2 $\frac{1}{16}$
10	.1935	2.50	7.00	3 $\frac{5}{8}$	2 $\frac{3}{8}$
11	.1910	2.25	6.30	3 $\frac{1}{16}$	2 $\frac{33}{32}$
12	.1890	2.25	6.30	3 $\frac{9}{16}$	2 $\frac{5}{16}$
13	.1850	2.25	6.30	3 $\frac{1}{2}$	2 $\frac{9}{32}$
14	.1820	2.25	6.30	3 $\frac{1}{16}$	2 $\frac{1}{4}$
15	.1800	2.25	6.30	3 $\frac{7}{16}$	2 $\frac{1}{16}$
16	.1770	2.00	6.30	3 $\frac{3}{8}$	2 $\frac{3}{16}$
17	.1730	2.00	6.30	3 $\frac{1}{16}$	2 $\frac{33}{32}$
18	.1695	2.00	6.30	3 $\frac{1}{16}$	2 $\frac{1}{8}$
19	.1660	2.00	6.30	3 $\frac{1}{4}$	2 $\frac{3}{32}$
20	.1610	2.00	6.30	3 $\frac{1}{16}$	2 $\frac{1}{16}$
21	.1590	1.90	6.10	3 $\frac{1}{16}$	2 $\frac{1}{16}$
22	.1570	1.90	6.10	3 $\frac{1}{8}$	2
23	.1540	1.90	6.10	3 $\frac{1}{16}$	1 $\frac{31}{32}$
24	.1520	1.90	6.10	3 $\frac{1}{16}$	1 $\frac{15}{16}$
25	.1495	1.90	6.10	3	1 $\frac{29}{32}$
26	.1470	1.80	6.10	2 $\frac{15}{16}$	1 $\frac{1}{8}$
27	.1440	1.80	6.10	2 $\frac{15}{16}$	1 $\frac{1}{32}$
28	.1405	1.80	6.10	2 $\frac{7}{8}$	1 $\frac{1}{16}$
29	.1360	1.80	6.10	2 $\frac{13}{16}$	1 $\frac{3}{4}$
30	.1285	1.80	6.10	2 $\frac{13}{16}$	1 $\frac{33}{32}$
31	.1200	1.75	5.90	2 $\frac{3}{4}$	1 $\frac{1}{16}$
32	.1160	1.75	5.90	2 $\frac{11}{16}$	1 $\frac{1}{8}$
33	.1130	1.75	5.90	2 $\frac{11}{16}$	1 $\frac{5}{8}$
34	.1110	1.75	5.90	2 $\frac{5}{8}$	1 $\frac{9}{16}$
35	.1100	1.75	5.90	2 $\frac{9}{16}$	1 $\frac{1}{2}$
36	.1065	1.75	5.90	2 $\frac{1}{16}$	1 $\frac{1}{2}$
37	.1040	1.75	5.90	2 $\frac{1}{2}$	1 $\frac{1}{16}$
38	.1015	1.75	5.90	2 $\frac{7}{16}$	1 $\frac{3}{8}$
39	.0995	1.75	5.90	2 $\frac{1}{16}$	1 $\frac{11}{32}$
40	.0980	1.75	5.90	2 $\frac{3}{8}$	1 $\frac{33}{32}$

Numbers 1 to 80 inclusive, packed one dozen to envelope; broken packages 20% extra.

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

List continued on next page

NATIONAL TWIST DRILL & TOOL COMPANY



STRAIGHT SHANK WIRE DRILLS



Carbon Steel No. 97

High Speed Steel No. 208

Code Word: Carbon Steel, Sample High Speed Steel, Gamble

Number by Gauge	Decimal of 1 Inch	PRICE PER DOZEN		Length Over All Inches	Length Twist Inches
		Carbon Steel	High Speed Steel		
41	.0960	\$1.70	\$5.70	2 $\frac{5}{16}$	1 $\frac{5}{16}$
42	.0935	1.70	5.70	2 $\frac{5}{16}$	1 $\frac{1}{4}$
43	.0890	1.70	5.70	2 $\frac{1}{4}$	1 $\frac{7}{32}$
44	.0860	1.70	5.70	2 $\frac{3}{16}$	1 $\frac{1}{16}$
45	.0820	1.70	5.70	2 $\frac{3}{16}$	1 $\frac{1}{8}$
46	.0810	1.65	5.70	2 $\frac{3}{8}$	1 $\frac{1}{8}$
47	.0785	1.65	5.70	2 $\frac{1}{16}$	1 $\frac{3}{32}$
48	.0760	1.65	5.70	2 $\frac{1}{16}$	1 $\frac{1}{16}$
49	.0730	1.65	5.70	2	1
50	.0700	1.65	5.70	1 $\frac{15}{16}$	3 $\frac{1}{32}$
51	.0670	1.60	5.70	1 $\frac{13}{16}$	1 $\frac{9}{16}$
52	.0635	1.60	5.70	1 $\frac{7}{8}$	7 $\frac{9}{64}$
53	.0595	1.60	5.70	1 $\frac{11}{16}$	7 $\frac{1}{32}$
54	.0550	1.60	5.70	1 $\frac{13}{16}$	7 $\frac{1}{32}$
55	.0520	1.60	5.70	1 $\frac{3}{4}$	13 $\frac{1}{16}$
56	.0465	1.55	5.70	1 $\frac{11}{16}$	13 $\frac{1}{32}$
57	.0430	1.55	5.70	1 $\frac{11}{16}$	23 $\frac{1}{32}$
58	.0420	1.55	5.70	1 $\frac{5}{8}$	23 $\frac{1}{32}$
59	.0410	1.55	5.70	1 $\frac{3}{16}$	11 $\frac{1}{16}$
60	.0400	1.55	5.70	1 $\frac{3}{16}$	11 $\frac{1}{16}$
61	.0390	1.50		1 $\frac{1}{2}$	5 $\frac{3}{8}$
62	.0380	1.50		1 $\frac{1}{2}$	5 $\frac{3}{8}$
63	.0370	1.50		1 $\frac{1}{2}$	5 $\frac{3}{8}$
64	.0360	1.50		1 $\frac{1}{2}$	5 $\frac{3}{8}$
65	.0350	1.50		1 $\frac{1}{2}$	5 $\frac{3}{8}$
66	.0330	1.50		1 $\frac{1}{2}$	9 $\frac{1}{16}$
67	.0320	1.50		1 $\frac{7}{16}$	9 $\frac{1}{16}$
68	.0310	1.50		1 $\frac{7}{16}$	9 $\frac{1}{16}$
69	.0292	1.50		1 $\frac{3}{8}$	9 $\frac{1}{16}$
70	.0280	1.50		1 $\frac{5}{16}$	1 $\frac{9}{16}$
71	.0260	1.50		1 $\frac{5}{16}$	1 $\frac{1}{2}$
72	.0250	1.50		1 $\frac{1}{4}$	7 $\frac{1}{16}$
73	.0240	1.50		1 $\frac{3}{8}$	3 $\frac{3}{8}$
74	.0225	1.50		1 $\frac{1}{8}$	5 $\frac{1}{16}$
75	.0210	1.50		1 $\frac{1}{16}$	7 $\frac{1}{4}$
76	.0200	1.50		1	1 $\frac{1}{4}$
77	.0180	1.50		1 $\frac{5}{16}$	7 $\frac{1}{16}$
78	.0160	1.50		7 $\frac{1}{8}$	3 $\frac{1}{2}$
79	.0145	1.50		1 $\frac{1}{16}$	1 $\frac{1}{16}$
80	.0135	1.50		3 $\frac{1}{4}$	3 $\frac{1}{16}$

Numbers 1 to 80 inclusive, packed one dozen to envelope; broken packages 20% extra.

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

NATIONAL TWIST DRILL & TOOL COMPANY

**DOUBLE GROOVED SHANK DRILLS**

TAPER SHANK LENGTHS

Code Word: Carbon Steel, **Santon** High Speed Steel, **Gantlet**

Carbon Steel No. 108

High Speed Steel No. 213

Sizes and List Prices same as Straight Shank Taper Length Drills No. 94 and No. 201.

DOUBLE GROOVED SHANK DRILLS

JOBBER'S LENGTH

Code Word: Carbon Steel, **Sap** High Speed Steel, **Gantry**

Carbon Steel No. 108A

High Speed Steel No. 213A

Sizes and List Prices same as Jobbers Length Straight Shank Drills No. 95 and No. 206.

STRAIGHT FLUTED DRILLS

WITH TAPER SHANKS

Code Word: Carbon Steel, **Sapling** High Speed Steel, **Gap**

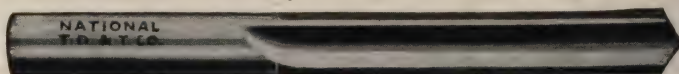
Carbon Steel No. 115

High Speed Steel No. 214

Sizes and List Prices same as Taper Shank Drills No. 93 and No. 200.

STRAIGHT FLUTED DRILLS

STRAIGHT SHANK—TAPER SHANK LENGTHS

Code Word: Carbon Steel, **Sari** High Speed Steel, **Garage**

Carbon Steel No. 116

High Speed Steel No. 215

Sizes and List Prices same as Straight Shank Taper Length Drills No. 90 and No. 201.

STRAIGHT FLUTED JOBBERS DRILLSCode Word: Carbon Steel, **Sash** High Speed Steel, **Garble**

Carbon Steel No. 103

High Speed Steel No. 216

Sizes and List Prices same as Jobbers Length Straight Shank Drills No. 95 and No. 206.

STRAIGHT FLUTED WIRE GAUGE DRILLSCode Word: Carbon Steel, **Sasin** High Speed Steel, **Garden**

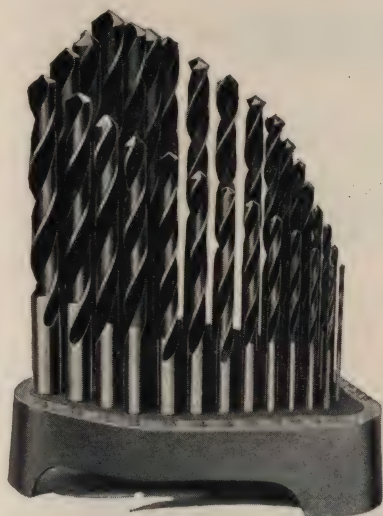
No. 114

Sizes and List Prices same as Wire Gauge Drills No. 97 and No. 208.

NATIONAL TWIST DRILL & TOOL COMPANY



JOBBER'S' STRAIGHT SHANK DRILL SET

**Carbon Steel No. 5**

Code Word: Altruistic

High Speed Steel No. 6

Code Word: Scuff

This set comprises all the sizes of Jobbers' straight shank drills from $\frac{1}{16}$ inch to $\frac{1}{2}$ inch, inclusive, by 64ths. Each drill fits in a hole plainly marked with its size.

As all the 32nd sizes are on one side and the 64th sizes on the opposite side, selection is made easy.

No. 5 Set Without
Stand.....\$12.50

No. 6 Set With-
out Stand... 26.20
Metal Stand... 3.50

STRAIGHT SHANK WIRE GAUGE DRILL SET

Carbon Steel No. 8

Code Word: Alum

High Speed No. 9

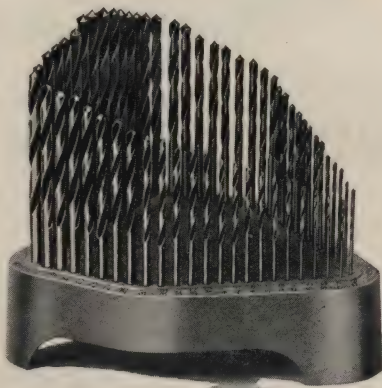
Code Word: Gaze

This set comprises all the sizes of straight shank drills, steel wire gauge, from No. 1 to 60, inclusive. The size drill fitting each hole is plainly marked on the stand. As even numbers are placed on one side and odd on the other, selection is made easy.

No. 8 Set Without
Stand.....\$10.85

No. 9 Set With-
out Stand..... 30.60

Metal Stand..... 3.50





NATIONAL TWIST DRILL & TOOL COMPANY

DRILL AND COUNTERSINK COMBINED



Carbon Steel No. 124

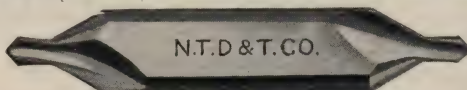
High Speed Steel No. 266

Code Word: Carbon Steel, Scale High Speed Steel, Gasket

Size	Size of Drill Inches	Diameter of Body Inches	PRICE PER DOZEN	
			Carbon Steel	High Speed Steel
A 1	No. 57 x 57	$\frac{1}{8}$	\$2.00	\$6.00
B 1	$\frac{3}{64}$ x $\frac{3}{64}$	$\frac{5}{32}$	2.25	6.00
C 1	No. 55 x 55	$\frac{13}{64}$	2.25	6.00
C 2	$\frac{1}{16}$ x $\frac{1}{16}$	$\frac{13}{64}$	2.25	6.00
D 1	No. 49 x 49	$\frac{15}{64}$	2.50	6.00
D 2	No. 45 x 45	$\frac{15}{64}$	2.50	6.00
E 1	$\frac{3}{32}$ x $\frac{3}{32}$	.302	2.75	6.00
E 2	$\frac{1}{8}$ x $\frac{1}{8}$	.302	2.75	6.00
F 1	$\frac{3}{32}$ x $\frac{5}{32}$	$\frac{7}{16}$	3.50	9.00
F 2	$\frac{3}{16}$ x $\frac{3}{16}$	$\frac{7}{16}$	3.50	9.00

The included angle of the Countersink is 60°. Special sizes or angles made to order.

COMBINED DRILL AND COUNTERSINK FITTING BLACKSMITHS' DRILL PRESSES



Carbon Steel No. 124B

High Speed Steel No. 266B

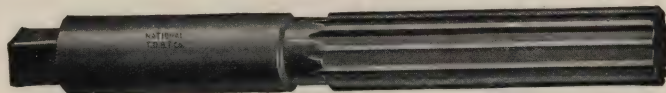
Bodies $\frac{1}{2}$ inch or .647 inch ($\frac{5}{8}$ inch) diameter flattened.

Code Word: Carbon Steel, Scant High Speed Steel, Gatch

Size	Size of Drill Inches	Diameter of Body Inches	PRICE PER DOZEN	
			Carbon Steel	High Speed Steel
J 1	$\frac{7}{32}$ x $\frac{7}{32}$	$\frac{1}{2}$	\$4.60	\$12.00
J 2	$\frac{9}{32}$ x $\frac{9}{32}$	$\frac{1}{2}$	4.60	12.00
J 3	$\frac{11}{32}$ x $\frac{11}{32}$	$\frac{1}{2}$	5.00	12.00
J 4	$\frac{13}{32}$ x $\frac{13}{32}$	$\frac{1}{2}$	5.00	12.00
M 1	$\frac{7}{32}$ x $\frac{7}{32}$	$\frac{5}{8}$	7.25	18.00
M 2	$\frac{9}{32}$ x $\frac{9}{32}$	$\frac{5}{8}$	7.25	18.00

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

JOBBER'S' HAND REAMERS



Carbon Steel No. 135

High Speed Steel No. 220

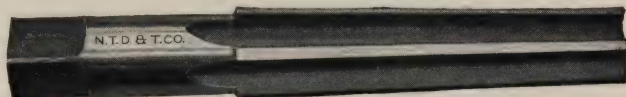
JOBBER'S' HAND REAMERS WITH SPIRAL FLUTES



Carbon Steel No. 137

High Speed Steel No. 222

MORSE TAPER REAMERS FINISHING REAMERS

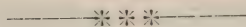


Carbon Steel No. 139

ROUGHING REAMERS



Carbon Steel No. 139A



ARBORS FOR SHELL REAMERS



No. 156A

BROWN AND SHARPE TAPER REAMERS

FINISHING REAMERS



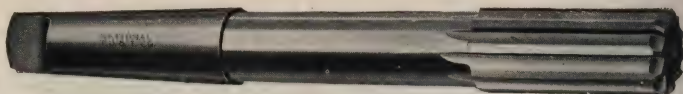
Carbon Steel No. 139B

ROUGHING REAMERS



Carbon Steel No. 139 C

ROSE CHUCKING REAMERS WITH TAPER SHANKS



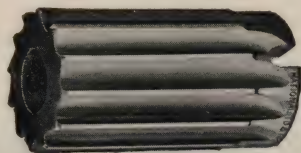
Carbon Steel No. 141A High Speed Steel No. 225A

FLUTED CHUCKING REAMERS WITH TAPER SHANKS

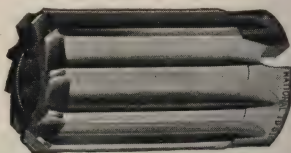


Carbon Steel No. 140A High Speed Steel No. 224A

SHELL REAMERS FLUTED SHELL ROSE SHELL



Carbon Steel No. 142 High Speed Steel No. 226



Carbon Steel No. 143 High Speed Steel No. 227



NATIONAL TWIST DRILL & TOOL COMPANY

TAPER PIN REAMERS

Taper $\frac{1}{4}$ inch per foot

Carbon Steel No. 150

High Speed Steel No. 275

Code Word: Carbon Steel, Sell High Speed Steel, Glare

Number	PRICE EACH		Diameter Small End Inches	Length Over All Inches	Length of Flute Inches
	Carbon Steel	High Speed Steel			
0	\$1.00	\$2.80	.1196	2 $\frac{3}{8}$	1 $\frac{5}{8}$
1	1.00	2.90	.1303	2 $\frac{1}{2}$	1 $\frac{3}{4}$
2	1.25	3.00	.1461	3	2
3	1.50	3.00	.1565	3 $\frac{1}{2}$	2 $\frac{1}{4}$
4	1.75	3.25	.1875	4	2 $\frac{1}{2}$
5	2.00	3.50	.2265	4 $\frac{1}{2}$	3
6	2.25	4.25	.2577	5	3 $\frac{5}{8}$
7	2.50	5.25	.3257	6	4 $\frac{1}{2}$
8	3.00	6.75	.3983	6 $\frac{3}{4}$	5 $\frac{1}{4}$
9	3.50	8.25	.4816	8	6 $\frac{1}{8}$
10	4.50	9.00	.5810	9	7
11	6.00	11.75	.7060	11 $\frac{1}{4}$	8 $\frac{1}{4}$
12	7.50	18.50	.8420	13 $\frac{3}{8}$	10
13	9.00	28.50	1.0090	16	12
14	11.00	38.50	1.2500	18 $\frac{1}{4}$	14

All sizes, dimensions and styles not listed are special and subject to special prices.

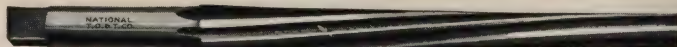
SPECIFY ALL TOOLS BY OUR LIST NUMBERS

NATIONAL TWIST DRILL & TOOL COMPANY



TAPER PIN REAMERS

WITH SPIRAL FLUTES

Taper $\frac{1}{4}$ inch per foot

Carbon Steel No. 150A

High Speed Steel No. 276

Code Word: Carbon Steel, Send High Speed Steel, Glass

Number	PRICE EACH		Diameter Small End Inches	Length Over All Inches	Length of Flute Inches
	Carbon Steel	High Speed Steel			
1	\$1.20	\$2.90	.1303	2½	1¾
2	1.50	3.00	.1461	3	2
3	1.80	3.00	.1565	3½	2¼
4	2.10	3.25	.1875	4	2½
5	2.40	3.50	.2265	4½	3
6	2.70	4.25	.2577	5	3⅝
7	3.00	5.25	.3257	6	4½
8	3.60	6.75	.3983	6¾	5¼
9	4.20	8.25	.4816	8	6⅛
10	5.40	9.00	.5810	9	7
11	7.20	11.75	.7060	11¼	8¼
12	9.00	18.50	.8420	13⅜	10
13	10.80	28.50	1.0090	16	12
14	13.20	38.50	1.2500	18¼	14

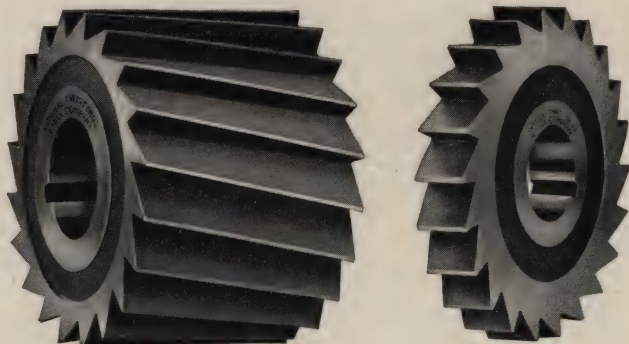
All sizes, dimensions and styles not listed are special and subject to special prices.

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

NATIONAL TWIST DRILL & TOOL COMPANY



PLAIN MILLING CUTTERS



Cutters of less than $\frac{3}{4}$ -inch face have straight teeth.

Cutters of $\frac{3}{4}$ -inch face and over have spiral teeth.

Cutters having nicked teeth or dimensions other than listed are special and subject to special prices.

Code Word: Carbon Steel, Service High Speed Steel, Glent

Catalog No.	Diameter Inches	Width of Face Inches	Size of Hole Inches	PRICE EACH	
				Carbon Steel	High Speed Steel
A 2	2 $\frac{1}{4}$	$\frac{1}{2}$	$\frac{7}{8}$	\$2.25	\$4.15
A 3	2 $\frac{1}{4}$	1	$\frac{7}{8}$	3.20	6.00
A 4	2 $\frac{1}{4}$	1 $\frac{3}{4}$	$\frac{7}{8}$	4.20	8.40
A 5	2 $\frac{1}{2}$	$\frac{3}{16}$	1	1.65	3.25
A 6	2 $\frac{1}{2}$	$\frac{1}{4}$	1	1.80	3.50
A 7	2 $\frac{1}{2}$	$\frac{5}{16}$	1	2.00	3.75
A 8	2 $\frac{1}{2}$	$\frac{3}{8}$	1	2.10	4.00
A 9	2 $\frac{1}{2}$	$\frac{7}{16}$	1	2.20	4.25
A10	2 $\frac{1}{2}$	$\frac{1}{2}$	1	2.30	4.50
A11	2 $\frac{1}{2}$	$\frac{9}{16}$	1	2.40	4.80
A12	2 $\frac{1}{2}$	$\frac{5}{8}$	1	2.45	4.80
A13	2 $\frac{1}{2}$	$\frac{11}{16}$	1	2.65	5.40
A14	2 $\frac{1}{2}$	$\frac{3}{4}$	1	2.80	5.40
A15	2 $\frac{1}{2}$	$\frac{13}{16}$	1	2.90	6.00
A16	2 $\frac{1}{2}$	$\frac{7}{8}$	1	3.10	6.00
A18	2 $\frac{1}{2}$	1	1	3.30	6.50
A20	2 $\frac{1}{2}$	1 $\frac{1}{4}$	1	3.70	7.50
A21	2 $\frac{1}{2}$	1 $\frac{1}{2}$	1	4.00	8.25

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

List continued on next page



NATIONAL TWIST DRILL & TOOL COMPANY

PLAIN MILLING CUTTERS

Code Word: Carbon Steel, Service High Speed Steel, Glent

Catalog No.	Diameter Inches	Width of Face Inches	Size of Hole Inches	PRICE EACH	
				Carbon Steel	High Speed Steel
A22	2½	1¾	1	\$4.35	\$9.15
A23	2½	2	1	4.75	10.10
A25	2½	2½	1	5.25	11.60
A27	2½	3	1	5.70	13.00
A29	2½	4	1	7.00	16.35
A30	2¾	⅜	1	1.75	3.40
A31	2¾	¼	1	2.00	3.75
A32	2¾	⅜	1	2.10	3.90
A33	2¾	⅜	1	2.30	4.30
A34	2¾	⅜	1	2.35	4.50
A35	2¾	½	1	2.40	4.70
A36	2¾	⅜	1	2.55	5.35
A37	2¾	⅝	1	2.70	5.35
A39	2¾	¾	1	3.20	6.25
A41	2¾	⅞	1	3.65	7.10
A43	2¾	1	1	4.00	7.85
A45	2¾	1¼	1	4.35	8.80
A46	2¾	1½	1	4.80	9.90
A48	2¾	2	1	5.35	11.60
A49	2¾	2½	1	5.85	13.25
A50	2¾	3	1	6.40	15.25
A52	2¾	4	1¼	7.65	18.60
A55	3	⅜	1	1.75	3.60
A56	3	¼	1	2.10	4.00
A57	3	⅝	1	2.35	4.50
A58	3	⅜	1	2.70	5.10
A61	3	⅜	1¼	2.70	5.10
A62	3	⅜	1¼	2.85	5.40
A63	3	½	1¼	3.10	5.90
A64	3	⅝	1¼	3.25	6.75
A65	3	⅝	1¼	3.45	6.75
A67	3	¾	1¼	3.85	7.50
A69	3	⅞	1¼	4.20	8.25

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

List continued on next page



NATIONAL TWIST DRILL & TOOL COMPANY

PLAIN MILLING CUTTERS

Code Word: Carbon Steel, Service High Speed Steel, Glent

Catalog No.	Diameter Inches	Width of Face Inches	Size of Hole Inches	PRICE EACH	
				Carbon Steel	High Speed Steel
A 71	3	1	1¼	\$4.55	\$9.10
A 72	3	1¼	1¼	5.10	10.35
A 73	3	1½	1¼	5.45	11.50
A 74	3	1¾	1¼	5.70	12.30
A 75	3	2	1¼	6.00	13.30
A 76	3	2½	1¼	6.60	15.25
A 77	3	3	1¼	7.00	17.00
A 78	3	3½	1¼	7.50	18.80
A 79	3	4	1¼	8.15	20.75
A 80	3	5	1¼	9.90	25.50
A 81	3	6	1¼	13.70	33.00
A 82	3½	¾	1	1.85	4.00
A 83	3½	¾	1	2.20	4.50
A 84	3½	¾	1	2.65	5.35
A 85	3½	¾	1	3.10	6.10
A 86	3½	¾	1	3.50	6.90
A 87	3½	½	1¼	4.00	7.70
A 89	3½	¾	1¼	4.40	8.65
A 91	3½	¾	1¼	4.90	9.70
A 93	3½	¾	1¼	5.55	11.10
A 94	3½	1	1¼	6.10	12.15
A 96	3½	1½	1¼	7.10	15.10
A 98	3½	2	1¼	8.15	18.10
A 99	3½	2½	1¼	8.75	20.35
A100	3½	3	1¼	9.40	22.75
A101	3½	3½	1¼	10.35	25.65
A102	3½	4	1¼	11.60	28.85
A103	3½	4	1½	11.60	28.85
A105	4	¾	1	2.60	5.50
A106	4	¾	1¼	2.60	5.50
A107	4	¾	1	3.20	6.50
A108	4	¾	1¼	3.20	6.50
A109	4	¾	1	3.85	7.70

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

List concluded on next page



NATIONAL TWIST DRILL & TOOL COMPANY

PLAIN MILLING CUTTERS

Code Word: Carbon Steel, Service High Speed Steel, Glent

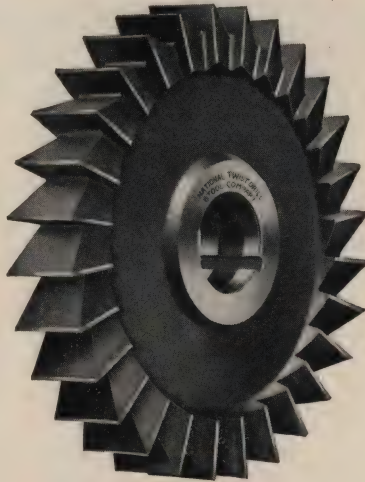
Catalog No.	Diameter Inches	Width of Face Inches	Size of Hole Inches	PRICE EACH	
				Carbon Steel	High Speed Steel
A110	4	$\frac{3}{8}$	$1\frac{1}{4}$	\$3.85	\$7.70
A111	4	$\frac{7}{16}$	$1\frac{1}{4}$	4.45	8.85
A112	4	$\frac{1}{2}$	$1\frac{1}{4}$	5.00	9.75
A113	4	$\frac{9}{16}$	$1\frac{1}{4}$	5.20	10.90
A114	4	$\frac{5}{8}$	$1\frac{1}{4}$	5.45	10.90
A116	4	$\frac{3}{4}$	$1\frac{1}{4}$	6.00	12.10
A118	4	$\frac{7}{8}$	$1\frac{1}{4}$	6.55	13.35
A119	4	1	$1\frac{1}{4}$	7.15	14.70
A120	4	1	$1\frac{1}{2}$	7.15	14.70
A121	4	$1\frac{1}{4}$	$1\frac{1}{4}$	7.90	16.70
A122	4	$1\frac{1}{4}$	$1\frac{1}{2}$	7.90	16.70
A123	4	$1\frac{1}{2}$	$1\frac{1}{4}$	8.40	18.40
A125	4	$1\frac{1}{2}$	$1\frac{1}{2}$	8.40	18.40
A127	4	$1\frac{3}{4}$	$1\frac{1}{4}$	9.00	20.25
A132	4	$1\frac{3}{4}$	$1\frac{1}{2}$	9.00	20.25
A133	4	2	$1\frac{1}{4}$	9.45	21.90
A134	4	2	$1\frac{1}{2}$	9.45	21.90
A135	4	3	$1\frac{1}{4}$	11.45	28.50
A136	4	3	$1\frac{1}{2}$	11.45	28.50
A137	4	4	$1\frac{1}{4}$	14.00	36.75
A138	4	4	$1\frac{1}{2}$	14.00	36.75
A139	4	5	$1\frac{1}{2}$	17.10	45.20
A140	4	6	$1\frac{1}{2}$	19.65	54.10
A156	$4\frac{1}{2}$	$\frac{1}{2}$	2	5.10	10.65
A158	$4\frac{1}{2}$	$\frac{5}{8}$	2	5.60	11.90
A160	$4\frac{1}{2}$	$\frac{3}{4}$	2	6.10	13.25
A161	$4\frac{1}{2}$	$\frac{7}{8}$	2	6.70	14.65
A162	$4\frac{1}{2}$	1	2	7.50	16.40
A163	$4\frac{1}{2}$	$1\frac{1}{4}$	2	8.60	19.15
A164	$4\frac{1}{2}$	$1\frac{1}{2}$	2	9.50	21.65
A165	$4\frac{1}{2}$	$1\frac{3}{4}$	2	10.45	24.25
A166	$4\frac{1}{2}$	2	2	10.80	25.90
A167	$4\frac{1}{2}$	6	2	24.70	68.00

SPECIFY ALL TOOLS BY OUR LIST NUMBERS



NATIONAL TWIST DRILL & TOOL COMPANY

SIDE MILLING CUTTERS



Cutters having dimensions other than listed are special and subject to special prices.

Code Word: Carbon Steel, **Seton** High Speed Steel, **Glide**

Catalog No.	Diameter Inches	Width of Face Inches	Size of Hole Inches	PRICE EACH	
				Carbon Steel	High Speed Steel
B 1	2	$\frac{3}{16}$	$\frac{1}{2}$	\$2.35	\$3.60
B 2	2	$\frac{3}{16}$	$\frac{5}{8}$	2.35	3.60
B 4	2	$\frac{1}{4}$	$\frac{1}{2}$	2.60	4.10
B 5	2	$\frac{1}{4}$	$\frac{5}{8}$	2.60	4.10
B 6	2	$\frac{3}{8}$	$\frac{1}{2}$	2.80	4.50
B 8	2	$\frac{3}{8}$	$\frac{5}{8}$	2.80	4.50
B 9	2½	$\frac{1}{4}$	$\frac{7}{8}$	2.80	4.65
B10	2½	$\frac{5}{16}$	$\frac{7}{8}$	2.90	4.90
B11	2½	$\frac{3}{8}$	$\frac{7}{8}$	3.15	5.30
B12	2½	$\frac{7}{16}$	$\frac{7}{8}$	3.25	5.50
B13	2½	$\frac{1}{2}$	$\frac{7}{8}$	3.40	5.80

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

List continued on next page

NATIONAL TWIST DRILL & TOOL COMPANY



SIDE MILLING CUTTERS

Code Word: Carbon Steel, **Seton** High Speed Steel, **Glide**

Catalog No.	Diameter Inches	Width of Face Inches	Size of Hole Inches	PRICE EACH	
				Carbon Steel	High Speed Steel
B14	2 $\frac{3}{4}$	$\frac{1}{4}$	$\frac{7}{8}$	\$2.90	\$5.00
B15	2 $\frac{3}{4}$	$\frac{5}{16}$	$\frac{7}{8}$	3.20	5.50
B16	2 $\frac{3}{4}$	$\frac{3}{8}$	$\frac{7}{8}$	3.40	5.80
B17	2 $\frac{3}{4}$	$\frac{7}{16}$	$\frac{7}{8}$	3.50	6.10
B18	2 $\frac{3}{4}$	$\frac{7}{16}$	1	3.50	6.10
B19	2 $\frac{3}{4}$	$\frac{1}{2}$	$\frac{7}{8}$	3.60	6.40
B20	2 $\frac{3}{4}$	$\frac{1}{2}$	1	3.60	6.40
B21	3	$\frac{1}{4}$	1	3.15	5.40
B22	3	$\frac{5}{16}$	1	3.50	6.25
B23	3	$\frac{3}{8}$	1	3.85	6.65
B24	3	$\frac{7}{16}$	1	4.10	7.15
B25	3	$\frac{1}{2}$	1	4.30	7.65
B26	3	$\frac{1}{2}$	1 $\frac{1}{4}$	4.30	7.65
B27	3 $\frac{1}{2}$	$\frac{7}{16}$	1	4.80	8.65
B28	3 $\frac{1}{2}$	$\frac{1}{2}$	1	5.35	9.60
B29	3 $\frac{1}{2}$	$\frac{9}{16}$	1	5.55	10.65
B30	3 $\frac{1}{2}$	$\frac{5}{8}$	1	5.80	10.65
B31	4	$\frac{1}{4}$	1	3.70	7.00
B32	4	$\frac{3}{8}$	1	5.15	9.50
B33	4	$\frac{3}{8}$	1 $\frac{1}{4}$	5.15	9.50
B34	4	$\frac{1}{2}$	1	6.50	11.90
B35	4	$\frac{1}{2}$	1 $\frac{1}{4}$	6.50	11.90
B36	4	$\frac{5}{8}$	1	7.10	13.15
B37	4	$\frac{5}{8}$	1 $\frac{1}{4}$	7.10	13.15
B38	4	$\frac{3}{4}$	1	7.65	14.40
B39	4	$\frac{3}{4}$	1 $\frac{1}{4}$	7.65	14.40

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

List concluded on next page



NATIONAL TWIST DRILL & TOOL COMPANY

SIDE MILLING CUTTERS

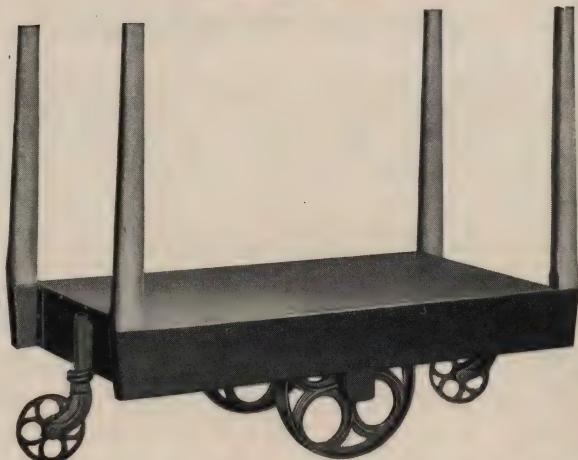
Code Word: Carbon Steel, Seton High Speed Steel, Glide

Catalog No.	Diameter Inches	Width of Face Inches	Size of Hole Inches	PRICE EACH	
				Carbon Steel	High Speed Steel
B40	4	$\frac{7}{8}$	1	\$8.25	\$17.30
B41	4	$\frac{7}{8}$	$1\frac{1}{4}$	8.25	17.30
B42	5	$\frac{1}{2}$	1	6.70	13.60
B43	5	$\frac{1}{2}$	$1\frac{1}{4}$	6.70	13.60
B44	5	$\frac{5}{8}$	1	7.30	15.20
B45	5	$\frac{5}{8}$	$1\frac{1}{4}$	7.30	15.20
B46	5	$\frac{3}{4}$	1	8.10	17.10
B47	5	$\frac{3}{4}$	$1\frac{1}{4}$	8.10	17.10
B48	5	$\frac{7}{8}$	1	8.75	18.75
B49	5	$\frac{7}{8}$	$1\frac{1}{4}$	8.75	18.75
B50	5	1	1	9.90	20.20
B51	5	1	$1\frac{1}{4}$	9.90	20.20
B52	6	$\frac{1}{2}$	1	8.55	18.65
B53	6	$\frac{1}{2}$	$1\frac{1}{4}$	8.55	18.65
B54	6	$\frac{5}{8}$	$1\frac{1}{4}$	9.10	20.40
B55	6	$\frac{3}{4}$	1	9.65	22.25
B56	6	$\frac{3}{4}$	$1\frac{1}{4}$	9.65	22.25
B57	6	$\frac{7}{8}$	$1\frac{1}{4}$	10.25	24.20
B58	6	1	1	11.00	26.40
B59	6	1	$1\frac{1}{4}$	11.00	26.40
B60	6	1	$1\frac{1}{2}$	11.00	26.40
B61	7	$\frac{3}{4}$	$1\frac{1}{4}$	17.50	36.25
B62	7	1	$1\frac{1}{4}$	20.40	43.15
B63	8	1	$1\frac{1}{4}$	24.75	55.20

SPECIFY ALL TOOLS BY OUR LIST NUMBERS

STEEL FACTORY TRUCKS

ROLLER BEARING.



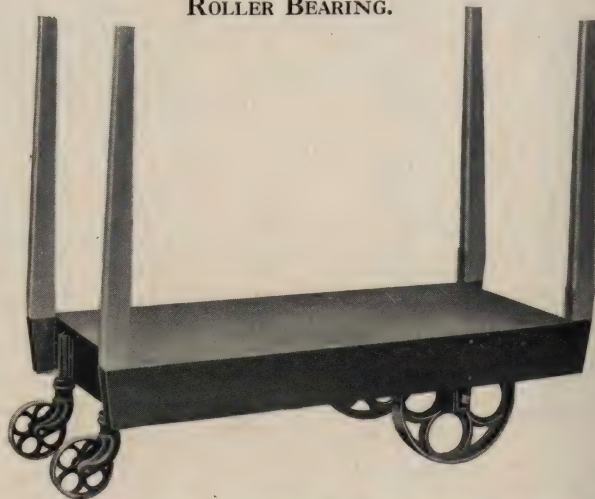
Center wheels 15 in. in diameter, 2 in. face. Caster wheels $6\frac{1}{4}$ in. in diameter, $1\frac{1}{4}$ in. face.

Style No. 10-F—24x52 in. Weight 146 lbs.

Style No. 10-G—28x58 in. Weight 162 lbs.

Style No. 10-H—34x70 in. Weight 192 lbs.

ROLLER BEARING.



Large wheels are 15 in. in diameter, 2 in. face. Caster wheels $6\frac{1}{4}$ in. in diameter, $1\frac{1}{4}$ in. face.

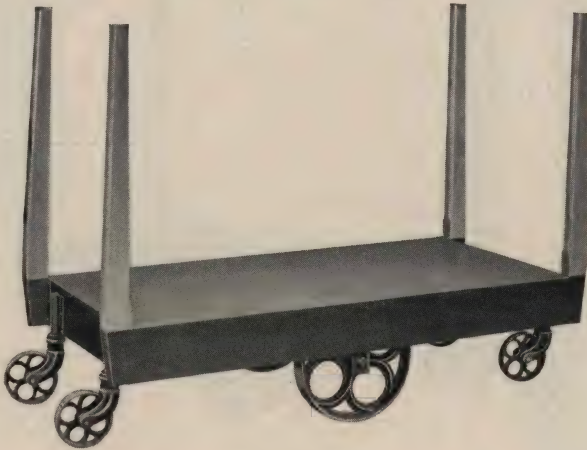
Style No. 12-I—24x52 in. Weight 146 lbs.

Style No. 12-J—28x58 in. Weight 162 lbs.

Style No. 12-K—34x70 in. Weight 192 lbs.

STEEL FACTORY TRUCKS

ROLLER BEARING.



Center wheels are 15 in. in diameter, 2 in. face. Castor wheels $6\frac{1}{4}$ in. in diameter, $1\frac{1}{4}$ in. face.

Style No. 14-L—24x52 in. Weight 174 lbs.

Style No. 14-M—28x58 in. Weight 188 lbs.

Style No. 14-N—34x70 in. Weight 219 lbs.

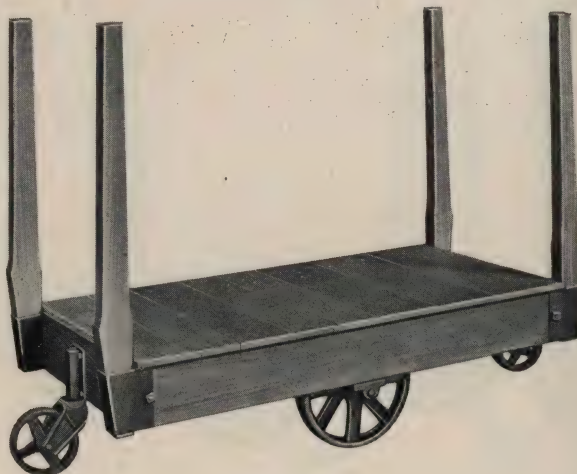
WAREHOUSE TRUCK

ROLLER BEARING.



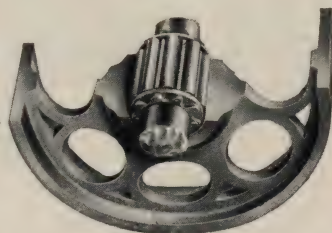
No. 36

Size 36 in. x 72 in. The center wheels are 18 in. in diameter, $3\frac{1}{2}$ in. face. Castor wheels 10 in. in diameter, 3 in. face. Axle $1\frac{3}{8}$ in. in diameter. Stakes and push bar 24 in. above platform. Weight 385 lbs.

WOOD FRAME FACTORY TRUCK

No. 26-A

Size 25 in. x 48 in. Center wheels 15 in. in diameter, 2 in. face. Caster wheels, 6¼ in. in diameter, 1¼ in. face. Weight 160 lbs.



GLOBE ANTI-FRICTION ROLLER BEARING WHEEL.

BASSICK TRUCK CASTERS

STEEL GEM ROLLER BEARING PLATE CASTERS



Highest quality, easy swiveling, long lived. All steel with iron wheels. Recommended for chests, light trucks, garage creepers, etc., etc.

Catalog number	351	551	751	851	951
Size	3	5	7	8	9
Wheel diam.	1 $\frac{1}{8}$	1 $\frac{5}{8}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2
Plate size	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{7}{8}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$
Sets, per box	1	1	1	1	1
Weight, per box, oz.	13	15	22	36	42

HARVARD STEEL BALL BEARING TRUCK CASTERS

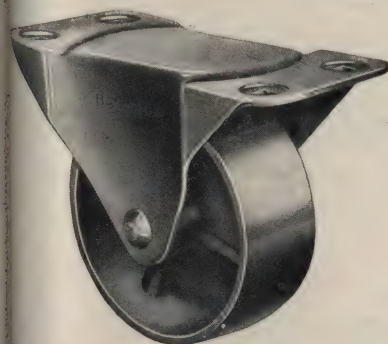
BASSICK "HARVARD" CASTERS are built of heavy steel throughout with hardened steel ball bearings. Light, easy swiveling, and extremely sturdy, they overcome effectively the faults common to iron types. Numbers listed are with iron wheels.

Number	Wheel Dia.	Plate Size	Height Overall	Weight Per Set lbs.
2421	2 $\frac{1}{2}$ "	2 $\frac{3}{4}$ x3 $\frac{1}{8}$ "	3 $\frac{3}{8}$ "	5 $\frac{3}{4}$
3421	3 $\frac{1}{8}$ "	3 $\frac{1}{8}$ x4 $\frac{1}{8}$ "	4 $\frac{1}{4}$ "	8 $\frac{1}{2}$



Can also be supplied with Rubber or Canvas Cushion Wheels.

BASSICK STEEL STATIONARY ROLLERS



BASSICK STEEL STATIONARY CASTERS mark a new high standard of efficiency in heavy duty rollers.

A patented, trussed steel horn, formed of heavy gauge steel gives strength and absorbs shock. It is a marked improvement over the cast iron horn which due to its brittleness breaks under shock.

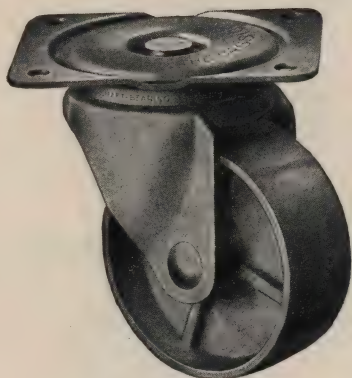
Added strength is obtained by a box construction, the legs of the horn being locked against a spanner bushing which extends between the two legs, and through which the axle is riveted. This strengthens the horn and gives the wheel an increased bearing surface resulting in longer life to the caster.

Catalog Number	Wheel	Diam. of Wheel	Width of Plate	Length of Plate	Plate Holes Center to Center	Height Overall	Weight Per set Pounds
2381	Iron	2 $\frac{1}{2}$	2 $\frac{1}{4}$	4 $\frac{1}{2}$	1 $\frac{1}{8}$ x3 $\frac{1}{2}$	2 $\frac{7}{8}$	4 $\frac{1}{4}$
3381	Iron	3 $\frac{1}{8}$	2 $\frac{1}{2}$	5	1 $\frac{1}{8}$ x4	3 $\frac{5}{8}$	7
4381	Iron	4	3 $\frac{1}{8}$	6 $\frac{1}{4}$	1 $\frac{3}{4}$ x5	4 $\frac{5}{8}$	11
5381	Iron	5	3 $\frac{3}{8}$	7 $\frac{1}{4}$	1 $\frac{7}{8}$ x6	5 $\frac{3}{4}$	17 $\frac{1}{2}$

Can also be supplied with Rubber or Divine Cushion Wheels.

BASSICK STEEL SHAFT BEARING CASTERS

FOR INDUSTRIAL TRUCKS



BASSICK STEEL TRUCK CASTERS are built to withstand violent shock and severe usage on trucks of all types. They are ideal for use in Mills, Factories, Warehouses, stock rooms, etc., and will render long and satisfactory service under all conditions. Specially treated steel is used exclusively in their construction, as against iron of low tensile strength and elasticity. The Shaft Bearing Line is one of the latest productions of BASSICK engineers. The differential nature of the bearings allows the rollers to rotate in a circular path without slippage or friction, insuring the best possible swiveling action. Greater carrying capacity is also obtained because the load is carried on lines of contact rather than on points. This is well illustrated in the above sectional cuts.

SPECIFICATIONS

Dimensions are given in inches.

Catalog Number	Wheel	Diam. Wheel	Size of Plate	Plate holes Center to Center	Height Over all	Weight Per Set (Four)
14431	Iron	4	4x5	3 x4	5¼	16 lbs.
16431	Iron	6	6x6½	4⅛x5½	7¾	46¾ lbs.
14436	Rubber	4	4x5	3 x4	5¼	16 lbs.
16436	Rubber	6	6x6½	4⅛x5½	7¾	46¾ lbs.
14439	Divine	4	4x5	3 x4	5¼	16 lbs.
16439	Divine	6	6x6½	4⅛x5½	7¾	46¾ lbs.

THE WALWORTH STILLSON WRENCH

The genuine WALWORTH STILLSON wrench will start or stop anything round, square or hexagonal in shape.



6 TO 14 INCH WOOD HANDLE.



6 TO 10 INCH STEEL HANDLE.



8 TO 10 INCH AUTOMOBILE.



14 TO 24 INCH STEEL HANDLE.



36 TO 48 INCH STEEL HANDLE.

PRICE LIST

	6	8	10	14	18	24	36	48
Length Open, in.	1/8-1/2	1/8-3/4	1/8-1	1/4-1 1/2	1/4-2	1/4-2 1/2	1/4-3 1/2	1-5
Takes Pipe, in.								
Each	\$2.00	\$2.25	\$2.50	\$3.50	\$5.00	\$7.25	\$13.50	\$20.00
Automobile	.....	2.25	2.50	.....	.....	.....	.....	.....

SPECIAL PERFECTION CLAMP



This is a strong, durable, convenient, general purpose CLAMP. It is especially useful in all wide Clamping, such as Sash, Doors, Blinds, Furniture, etc. It is made in two patterns—the regular and heavy. The regular pattern has clamping surfaces two inches deep, $1\frac{7}{8}$ inches wide, and the clamping surfaces of the heavy pattern are $2\frac{1}{4}$ by $2\frac{1}{4}$ inches. The bar is high Carbon Manganese Steel, extra heavy, giving great strength. Crank frame, tip and slide are of the best grade of Malleable Iron, Dog for slide is tempered steel. Screw for light clamp is $\frac{5}{8}$ inch in diameter and for heavy clamp $\frac{3}{4}$ inch in diameter. It has deep cut Acme thread with extra long bearing insuring long life to the Clamp.

List prices per pair as follows:

"Regular"

Feet	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Price	\$7.60	\$7.80	\$8.00	\$8.50	\$9.00	\$9.50	\$10.00	\$11.00

"Heavy"

Feet	3	4	5	6	7	8	9	10
Price	\$16.50	\$17.00	\$18.00	\$19.00	\$20.50	\$22.50	\$25.00	\$28.00

STANDARD CARRIAGE CLAMPS



This is an exceedingly well made tool. Frame is best grade Malleable and screw is Steel and large in diameter. Screws are full length closing the entire opening of the Clamp. The tip turns on the screw easily and stays there. Furnished regularly with button tips, will furnish with ball and socket tips when specified.

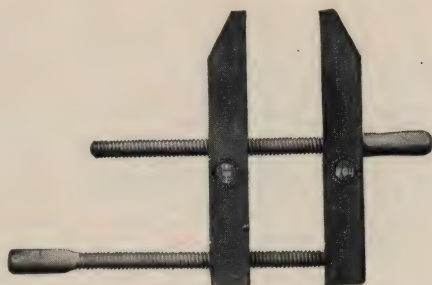
Opening Inches	$2\frac{1}{2}$	3	4	5	6	7	8	10	12
Price Per Doz.	\$7.00	\$8.00	\$11.00	\$14.00	\$18.00	\$22.00	\$28.00	\$36.00	\$46.00

HAND SCREWS AND CLAMPS



HAND CLAMPS shown above are made in different lengths from two to ten feet long in foot lengths. Castings are standard size and are interchangeable.

HAND SCREWS



HAND SCREWS are made in the following sizes:

- 8 in. jaws, diam. of spindle $\frac{5}{8}$ or $\frac{3}{4}$ in. Length of spindle 10 or 12 in.
- 10 in. jaws, diam. of spindle $\frac{3}{4}$ in. Length of spindle 12 in.
- 12 in. jaws, diam. of spindle $\frac{7}{8}$ in. Length of spindle 16 in.
- 14 in. jaws, diam. of spindle $\frac{7}{8}$ in. Length of spindle 18 in.

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